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Corporate Governance and Employee Pensions

AbdulRahman M. Al-Taweel

University of Colorado Boulder, altaweel@colorado.edu

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Corporate Governance and Employee Pensions

by

AbdulRahman M. Al-Taweel

Bachelor of Science, University of Colorado at Boulder, 2003

MBA, University of Colorado at Boulder, 2008

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This thesis entitled:
Corporate Governance and Employee Pensions
written by AbdulRahman M. Al-Taweel
has been approved for the Department of Finance

Mattias Nilsson

Sanjai Bhagat

Roberto Pinheiro

Date _____

The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

Al-Taweel, AbdulRahman M. (Ph.D., Business Administration)

Corporate Governance and Employee Pensions

Thesis directed by Prof. Mattias Nilsson

Using a large panel data set, this paper studies the relationship between corporate governance and defined benefit plan management in the United States. I show that poorly governed firms, proxied by log of median director ownership and five other governance variables, are more likely to sponsor defined benefits (DB) plans. Using a Heckman selection model I show that these poorly governed firms have more pension assets and more pension liabilities on aggregate and on a per employee basis, and they fund their defined benefit plans better. Poorly governed firms also tend to assume higher rates of return on their pension assets, as well as higher discount rates on their future pension obligations. Poorly governed firms are also more likely to sponsor DB plans that are funded better than the median plan. These firms tend to operate in union-intense industries and usually in more concentrated markets. Better governed firms, in turn, have more growth in their pension assets and liabilities as a result of path dependencies. I further examine CEO characteristics related to these firms and find that firms are more likely to sponsor defined benefit plans when their CEO salaries are higher and the CEO total compensation is higher. The data also shows that lower CEO ownership in the firm increases the likelihood of sponsoring a defined benefit pension plan, in line with previous literature (Pagano and Volpin (2005)) showing CEOs with lower ownership and rights on cash flows direct more cash towards employees. This evidence is in line with Bertrand and Mullainathan's (2003) Quiet Life argument, and shows that entrenched CEOs value non-pecuniary benefits as theorized by Jensen and Meckling (1976) and supported empirically by Cronqvist et al (2009).

Dedication

To my parents who encouraged me to achieve a degree they didn't have the opportunity to achieve. To my wife who supported me throughout this journey. To my children who I do this for day in and day out. To my family of doctors. To my friends. This is for you.

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Chapter 1

Introduction

What firms sponsor defined benefit (DB) pension plans, and what are the determinants of corporate DB pension policy? More importantly, what incentives, if any, drive CEOs of such firms to manage, or mismanage, DB plans? Jensen and Meckling (1976) look at the agency problems related to CEOs and state that these managers enjoy private benefits that are not necessarily tangible; employee loyalty, better relationships with employees, less conflicts and effort in wage bargaining especially in union-intense industries, and other non-pecuniary benefits can arise from paying workers more. Paying workers more than a competitive wage can have a positive impact on morale and quality of effort. However, Jensen and Meckling (1976) do not specify *how* workers are paid and whether or not these payments are actually made or simply promised to employees. Bertrand and Mullainathan (2003) study entrenched managers and find that managers prefer to live the “quiet life”, where managers would rather live peacefully than to empire build or get into conflicts with unions. Cronqvist, Heyman, Nilsson, Svaleryd and Vlachos (2009) use Swedish data and find that entrenched managers do pay their workers more and enjoy these non-pecuniary benefits mentioned in Jensen and Meckling (1976). In this paper, I show that entrenched CEOs in the United States also pay their employees more, albeit in future terms, to enjoy the same non-pecuniary benefits mentioned in Jensen and Meckling (1976).

For a comparable study one would like to work with all workers’ wages in the United States, similar to data obtained from Scandinavian countries. Many papers use plant-level data in the United States to study factors that affect plant worker wages as another way to argue different

topics. While both aforementioned methods yield strong results in their respective fields, I study the factors that affect another form of employee pay - future promises made to employees in the form of defined benefit pensions. Data availability is always a problem, and I try to circumvent this issue by merging several databases relating to financial data, labor data, CEO and Board data, and finally pension plan databases to look at the relationship between CEO entrenchment - measured by several governance indices - and rank-and-file employees defined benefit pension plans. Governance indices are also tricky to use since no one index is perfect, and most of the indices have many flaws. I used the log of the median director's ownership as per Bhagat and Bolton (2008) as my main measure since it is an intuitive measure that does not require assumptions in terms of weighing different variables. To my knowledge, this paper is the first to look at managerial entrenchment and employees' DB plan management. The pension literature generally covers firms' investment and other decisions when sponsoring pension plans, and also look at pension plans as "inside debt" for CEO compensation.

Defined benefit plans are promises made to employees to receive certain compensation after retirement based on an equation that lumps together employees salary, employee tenure and future growth rate of current salary depending on employees age. These promises are liabilities that the firm incurs, and as such the firm pledges assets and makes contributions to cover those liabilities. The DB plan is considered "funded" (unfunded) if the pension assets are greater (lower) than the pension liabilities. Watson Wyatt estimates that in 2006 the aggregate value of DB pension assets of U.S. corporations was \$2.2 trillion, a rather large amount that has a relatively lower exposure to research in the finance literature.

I look at all publicly traded firms in the Compustat universe from 1998 to 2006 and combine it with other databases to include director/board data, union data, and pension data. I restrict my sample to all firms that have at least one of my six governance measures. More than half of all the firms in my final dataset have sponsored a DB plan. In order to correct for endogeneity in the choice of sponsoring a DB plan, I use a Heckman self-selection model to first answer the question on the determinants of corporate DB pension plan policy; I find that poorly governed firms are more

likely to sponsor DB plans. This result is robust to different measures of governance and is not sensitive to the different indices used. This result leads us to the second question on CEO incentives to sponsor and manage such DB plans; in line with the previously mentioned papers, I find that entrenched CEOs pay their workers better, albeit in future terms, to enjoy private non-pecuniary benefits. Entrenched CEOs have larger pension liabilities and accompany that with larger pension assets. As such, these entrenched CEOs have a better funding status on their DB plans - *poorly* governed firms have a better funding status than better governed firms. Managerial opportunism is also evident in the volatility of a firm's DB plan funded status, showing that these poorly governed firms have larger volatilities associated with their funded status, as well as assuming higher rates of return on their pension assets and discounting their future pension benefit obligations more. Path dependency seems to dictate the growth in pension assets and liabilities, and as a result I find that better governed firms have larger growth in their respective pension assets and liabilities.

Employee satisfaction is another essential aspect of Jensen and Meckling's non-pecuniary benefits. Using Edmans (2011) data on employee satisfaction based on Fortune Magazine's "100 Best Companies To Work For in America", I find strong positive correlation between my governance measures and Edmans (2011) best companies (BC) measure, and it is not surprising that the BC results are very similar to the better governed firms results. BC firms are less likely to sponsor DB plans, have lower levels of pension plan assets and liabilities and have more growth in their pension assets and liabilities presumably attributed to path dependencies in the data. What is interesting in these BC results is that the pension assets and liabilities per employee are *higher* for these BC firms, suggesting that conditional on sponsoring a DB plan the firm has more assets per employee set aside to cover the larger liabilities promised to the employees.

I also look at how tax benefits affect both the likelihood of sponsoring a DB plan and the management of these plans. Theory suggests that firms would take advantage of the tax deductions should they have higher marginal tax rates. As such, I find that firms that have higher marginal tax rates are more likely to sponsor a DB plan. Higher marginal tax rates are also significantly and positively related to funded status and the level of pension assets per employee.

The data also shows that these firms with better funded pension plans operate in more unionized industries. One can conclude from the data that CEOs do not want to have conflicts with these unions and as such fund their DB plans better, which in turn leads to happier employees and better relationships between managers and employees. The “quiet life” argument also dictates higher market concentrations and assumes relatively high barriers to entry, and the evidence in this paper shows that higher market concentration within an industry not only increases the likelihood of sponsoring a DB plan but also shows better funding of the DB plans, higher levels of DB plan assets and liabilities on aggregate and on a per employee basis. These results suggests the evidence is in line with Bertrand and Mullainathan’s (2003) “quiet life” theme.

In order to get a better grasp of CEO incentives, I also look at CEO compensation structures and find that CEO ownership is negatively related to the likelihood of sponsoring a DB plan - the lower the CEO ownership in the firm, the more likely the firm would sponsor a DB plan. This result is in the same vein as Pagano and Volpin’s (2005) result showing lower managerial ownership is related to increased employee wages. The evidence in this paper also shows that CEOs in firms with DB plans tend to have higher salaries (guaranteed portion of compensation). I also find that in these firms, the guaranteed portion of compensation is positively related to the level of DB plan fundedness. The value of CEOs holdings in the firm are also positively related to fundedness, but total CEO compensation is negatively related to DB plan fundedness - the lower the total compensation, the higher the fundedness. Throughout all the CEO analyses and specifications, the governance effects were still strong and significant. The CEO analysis follows in the quiet life theme: entrenched managers that fund their plans better are older and have a higher percentage of guaranteed pay in the form of salary in the compensation package, suggesting managers may have more control over their compensation package and are happy with the status quo and not looking to empire building schemes or expansion plans.

My analysis contributes to several strands in the finance literature. First, in terms of the pension literature, to my knowledge these results are the first to document the relationship between corporate governance, CEO characteristics and DB plan management. Previous studies have

looked at the effects of pension on capital structure (Shivdasani and Stefanescu (2010)), or how pension contributions affect levels of corporate investment (Rauh (2006a)). Other studies have documented relationships between pension contributions and tax benefits, or have looked at an investors perspective on a firm's pension funds.

This paper also contributes to the literature on managerial control of off-balance-sheet items. Many papers in this branch of finance look at the tax implications and benefits of off-balance-sheet items and how they are affected by corporate tax considerations. Previous studies have looked at pensions (Shivdasani and Stefanescu (2010)) and leases (Graham et al (1998)) as examples of off-balance-sheet items and found significant results on uses of such items. Pension plans are an off-balance-sheet item, and this paper shows that entrenched managers have rather large discretion over how these plans are managed, especially if they are geared towards a manager's private benefits.

Finally, these results also add to literature on managerial benefits of control. Many studies have documented managers' benefiting from social relationships and other non-pecuniary benefits starting with Jensen and Meckling (1976) and more recently empirically shown in Cronqvist et al (2009). The results presented in this paper also build on Bertrand and Mullainathan's (2003) quiet life story, and corroborates their claims on managerial quiet-life preferences.

The paper is organized as follows. Chapter II explains the theory behind pension plans and gives background information on the literature surrounding pensions. Chapter III discusses the theory behind corporate governance, managerial entrenchment, and private benefits. Chapter IV describes the data. Chapter V describes the construction of my empirical model, the results as well as robustness checks. Chapter VI concludes.

Chapter 2

Pensions

There are several research papers that conduct studies on how governance affects worker pay. Cronqvist et al (2009) use Scandinavian worker data to show how different governed firms pay their workers. Bertrand and Mullainathan (2003), as well as others, look at plant-level data and study the different governance effects on wages. I will look at a close alternative: defined benefit pension plans. Although it is not a perfect substitute to worker wages, I believe it will certainly give us some insight as to how managers in the US promise to compensate their workers. The future “promises” to pay employees in the future is in itself an interesting avenue to explore given different types of managers and different levels of managerial discretion. In the employees point of view, they would be more relaxed and less prone to revolt against their manager if their future promises seem likely to be fulfilled. From a managers point of view, the level of pension fundedness does not include any money exchanging hands between the firm and the employees today, and as such a manager may or may not be inclined to manage their pension funds as well as other managers.

While there are many papers related to pension funds, it is surprising how few actually study the relationship between corporate governance/managerial entrenchment and defined benefits (DB) pension funds’ management. Most of the literature studies the effect of DB plans on a firm’s tax status, underfunded DB plans on corporate activity, and also on pensions as inside debt instruments as part of CEO compensation. There are many technical papers that explain the technical and accounting differences between balance sheet entries and what firms can and cannot record, but

once again to my knowledge nothing relating to managerial entrenchment exists.

There are several types of pension plans in use today, the two most common of which are the defined benefit (DB) plan and the defined contribution (DC) plan. A DC plan is similar to a 401k account, where employers, employees, or both parties, make certain contributions into an account on behalf of employees that accumulates investment returns throughout the employee's tenure at the firm. The employer's only responsibility is this specified contribution with a known obligation and cost, and all the investment risk is borne by the employee. A DB plan is different in the sense that it promises an employee a certain amount of benefits upon retirement, based on a formula with three main inputs: the employees age, tenure and salary. To the extent that this benefit formula gives an unknown result at an unknown cost to the employer, all the investment risk is borne by the employer. Differences between the two types of plans lie inherently in the risk borne by each party involved.

2.1 Public and Private Pension Plans

Private pension funds should not be confused with public pension funds. Private pensions are pension funds sponsored by corporations in the private sector, while public pensions are sponsored by public entities such as governments and/or municipalities. This study deals with private pensions only, but public pensions warrant some discussion.

Why do these plans even exist in the first place? Lazear (1986) posits that these plans have to be beneficial for either the employer, the employee, or both. He states that these plans act as implicit contracts between an employer and an employee that alters incentives for long term employment with less turnover¹, and employers may offer these long term incentives to encourage more effort from employees in the workplace. He also states that less turnover leads to lower costs in training, and more induced effort leads to higher productivity and more profits to be shared with the employee. He calls this an "efficiency wage"; you can't monitor all employees, so this efficiency

¹Mitchell (1982) finds that having a pension reduces probability of leaving a job by 10%

wage can deter shirking by an employee since the employee would lose his/her job if found shirking and can give up his pensions before qualifying for them.

Just as underfunding pension plans may affect some corporate activities in the private sector, the fear of under spending on essential public service is tied to underfunding these public pension plans. These obligations on the public sector are substantially large since a great majority of public workers have access to DB plans. The Bureau of Labor Statistics shows that 92% of unionized public sector employees and 65% of non-unionized workers have access to some sort of DB plan and/or retiree health benefit plans. In terms of private sector plans, 88% of unionized private industry workers have access to a DB plan and/or retiree health benefits, and 62% of non-unionized workers have access to these plans.²

These pension obligations are liabilities on private sector firms and also liabilities for the public sector. There is no disagreement whatsoever over how and why these public plans are underfunded. There is, however, a large debate over how to value the liabilities associated to these public plans. The Government Accounting Standards Board approves the use of the expected rates of return of plan assets as the liabilities discount rate, yet there is no rigorous theoretical foundation to prove that this is the right method. As such, policy makers, plan administrators and plan actuaries use this method approved by the GASB. To put it into perspective, Brown, Clark and Rauh (2011) show that these public plans use a discount rate between 7-9%, as opposed to the 4% that is related to municipal bond yields that many people suggest should be used as the appropriate discount rate. Novy-Marx and Rauh (2010) look at the underfunding of public plans and find a total underfunding of \$3.2 trillion using municipal bond rates and treasury rates as discount rates. Munnell et al (2011) look at 126 public plans and use GASB accounting rules and still find a funding ratio of 78% and \$800 billion in aggregate underfunding.

In terms of benefits to employees, the public pension plans are much more generous than private plans. Brown, Clark and Rauh (2011) show that public pension plans pay higher benefits

²In terms of public sector employees, only Alaska, Michigan, Nebraska and Utah offer something other than DB plans to new employees

per year of service, and also encourage younger retirement due to the way these plans are designed. They show that plan design and characteristics are extremely important in influencing worker decisions, and since nearly all public sector employees are covered by a DB plan that entitles them to generous benefits upon retirement, it discourages turnover and encourages early retirement. As a result, they cost more to fund. Retiree health plans are offered in nearly all states and local governments, which is not necessarily the case for private sector employees. The costs of these retiree health plans are soaring in both the public and private sector, according to Brown, Clark and Rauh (2011).

The trouble with public pensions is that some plans are tied to constitutional non-impairment clauses by several states, meaning that these obligations cannot be reduced under law.³ Promising higher future pay in these states runs the risk of not being able to reduce them, if need be, in the future when facing funding trouble. Schieber (2011) says that increasing benefits in good times without taking into account constraints against lowering them during bad times is a recipe for disaster, which is what got these plans to this underfunded state.

So how should one fund these plans? Black (1989) and Bodie (1990) suggest using a bond portfolio with a similar duration to that of a plan's lifetime in order to shield them from interest rate fluctuations. Lucas and Zeldes (2006) suggest that these plans should be funded with equity since these accrued liabilities are a function of wage growth, and stocks and wages are correlated over long time horizons. Pennacchi and Rastad (2011) favor more risk in portfolios to back these plans, since a more risky portfolio may be beneficial for taxpayers if they lack access to risky investments and could provide risk exposure for them. They also state that, however, if these pension funds run surpluses and that surplus is shared with employees, then taxpayers may not benefit from this added risk. There is no clear consensus on how these plans should be funded, but there is an agreement that most of the assets should be in terms of fixed income securities. Pennacchi and Rastad (2011) look at the composition of these plans and find that less than 25%

³Illinois has such a law. They cannot reduce these liabilities for current employees. They have reduced the benefits for newly hired employees as a result

of a typical portfolio is in terms of fixed income securities, with the rest being invested in riskier holdings. Given that nearly three quarters of pension assets were directed towards equity and such risky assets, one would not be totally surprised about their decline after the recent credit crisis in 2008. To sum up this argument, it is clear that insufficient contributions, excessive benefit increases during good times, poor asset allocation and poor asset-liability risk management all led to these public plans ending up with this large amount of unfunded obligations.

The remainder of this paper will discuss private pension plans and how they are affected by different corporate actions.

2.2 Trends in Converting to Defined Contribution Plans

As mentioned above, DC plans are different than DB plans in terms of who bears the risks associated with investment returns on the pension assets. Recall that a DC plan is similar to a 401k account where either employers, employees, or both parties, make a specified contribution in a timely manner into an account on behalf of employees that accumulates investment returns throughout the employee's tenure at the firm. As a result, the employee bears all the investment risk associated with the account.

In terms of converting to DC plans, Schieber (2011) shows a trend in the private sector to offering DC plans as opposed to DB plans. More specifically, he finds that in "1975 DB participants were 27.2 million and DC participants were 11.2 million, representing 48% and 18% of the workforce respectively. In 2004, DB plans dropped to 20.6 million, and DC rose to 52.2 million, 19% and 48% respectively". Another paper by Perun and Valenti (2008) shows that while 70% of active employees participated in a DB plan in 1975, over 75% of active employees in 2005 participated in a DC plan instead. They also find that participation in DC plans increased over 48% between 1995 and 2005. Studies attribute this shift towards DC plans to increasing costs to employers, as well as complex rules and regulations that must be followed when sponsoring a DB plan. Another major reason for the conversion is said to be the unpredictable cash contributions to the plans because of

volatility of pension asset investment returns. As mentioned above, the firm bears all investment risks associated with these pension assets based on their respective allocations and investment strategies.

This conversion to DCs is not only a supply side issue, but a demand side issue as well. Rauh and Stefanescu (2009) mention that on the demand side employees are searching for more flexibility and more control over their own retirement accounts, similar to 401(k)s, especially since technological innovations increased employee turnover, which makes retirement accounts' mobility that much more valuable. Newer generations of workers may not be interested in promises of distant benefits at 65 years of age, and pension plan mobility becomes a necessity. Perun and Valenti (2008) use data provided by the PBGC and state that there is a trend in the decline of DB plans, and a large decline associated with non-unionized DB plan participants. These declines are mostly a result of DB plan conversions by smaller firms with plans that cover 250-999 employees. They also find that larger DB plans with 5,000 and more participants continue to exist and grow through time.

Several articles and technical papers have predicted this trend to DC to increase especially after the passage of the Pension Protection Act in 2006. The Act increased DB plan disclosure and reporting rules, making the DB plans more transparent to participants, and researchers predict that firms would convert to DC plans post 2006 because of these new rules.⁴ Munnell and Soto (2007) look at the British pension system after they adopted more transparent disclosures on DB plans and found the percentage of assets frozen or terminated doubled after the passage of those laws.

Perun and Valenti (2008) state that “after 30 years of gradual decline, DB plan providers are slowly, but steadily, acting to freeze or terminate their plans”. It is probable that the long-term effects of these conversions from DB to DC plans will not be seen for decades, but the causes of these conversions are clear and relatively comprehensible, as explained above.

⁴Unfortunately my dataset covers years up to 2006. This is definitely a fertile area for future research.

2.3 Defined Benefit Pension Plan Portability

Portability of pensions is relatively important to American workers, especially since Hall (1984) states that Americans typically hold 10 or 11 jobs during their working lives. As such, it is important for participants in DB plans to know what happens during job loss or job transition.

But how portable are these pension plans really? Portability is less of an issue in DC plans since they are very similar to 401(k) accounts, where an account is set up and contributions are made in a timely manner and accumulates investment returns. Even if employees switch firms, similar contributions made to the account and similar investment rates of returns would provide them with the same benefits upon retirement. As such, these DC plans are assumed to be portable.

Since DB plan benefits are calculated using a formula that takes into account years of service and final/average salary, benefits will not be the same if employees switch jobs. Vested employees that leave their jobs before retirement would have their final/average salary used at that time, which would be less than that at retirement, multiplied by the number of years of service, which again is less than that at retirement. As such, the total benefits received would be lower.

There are some portability provisions that exist covering DB plans. Some provisions cover the accumulated assets, and others involve credited service by the employee.⁵ However, these portability provisions are rarely available to single-employer pension plans. There are some “multi employer” plans that exist in highly mobile and unionized industries such as trucking and transportation that collectively manage their plans, and employees moving from one employer to the other do not get penalized when it comes to determining their benefits.

However, Foster (1994) states that “few DB benefit plans are available with portability provisions”, and as such I will assume that no portability exists in DB plans for the purpose of my econometric model. Recall also that theory states DB plans encourage and incentivize longer

⁵Some provisions cover assets that can be withdrawn as a lump sum, and credited service provisions allow the new employer to account for years of service at the previous employer in determining pension benefits

tenures for employees at the firm, and as such portability may be at odds with the ultimate goal of providing DB pension plans.

2.4 Pension Benefit Guarantee Corporation⁶

ERISA, the Employee Retirement Income Security Act, was passed in 1975 to set up a regulatory framework to make these pension plans more secure. ERISA set up the PBGC to partially insure participants from losing all their pensions if their firm goes through a period of financial distress. It is said that ERISA was passed in order to avoid another Studebaker-Packard, where nearly 11,000 employees lost their jobs in 1963 after the Studebaker-Packard Corporation went under and closed their plant. The employees were surprised that they also lost all their pensions - 85-100% of their accrued benefits went down with the firm as well. Wooton (2001) states that “no single event is more closely associated with ERISA than the shutdown of the Studebaker plant in South Bend, Indiana”.

To see how the PBGC works, Bethlehem Steel declared bankruptcy in 2001, and had funded only 45% of their employees pension benefits. The PBGC announced they would cover 92% of the \$7.8 billion accrued to employees, and as a result the employees were only exposed to an 8% loss.

The PBGC takes over a firm’s pension plan in two ways: (1) either it takes over the plan in an involuntary termination, or (2) the firm files for distress termination, usually during bankruptcy. Involuntary termination usually happens when the PBGC proves that the possible long term loss to the PBGC can be expected to increase if the pension plan is not terminated. Distress termination usually happen when a firm can prove that they cannot pay off their debts and cannot continue in business unless the pension plan is eliminated. The follow sections will describe the rules and regulation in more detail.

⁶Most of this section is a summary of Jeffrey Brown’s (2007) “Guaranteed Trouble: The Economic Effects of the Pension Benefit Guarantee Corporation” for NBER. For further details please see <http://www.nber.org/papers/w13438>

How is the PBGC financed? Every private pension plan pays premiums to the PBGC, similar to insurance premiums, set by the United States Congress. The PBGC also acquires assets from terminated plans, collects investment returns and also bankruptcy recoveries. It is essential to point out that no tax revenues are directed towards the PBGC.⁷ These premiums were initially set at \$1 per participant in 1974. By 2006, Congress increased the premiums to \$30, and in 2007 it was linked to wage inflation. Underfunded plans pay 0.9% of the unfunded vested benefits to the PBGC. It is worth noting that premiums are the same and do not account for risk - underfunded plans pay the same premiums as funded plans per participant.

The financial status of the PBGC is of great importance. As of 2000, the PBGC had a surplus of roughly \$23 billion. As of 2006, the PBGC had a deficit of \$18.9 trillion, largely attributable to the post tech boom bankruptcies.⁸ As Brown (2007) states, “why is the agency that was supposed to provide retirement security turning into the main source of retirement insecurity?”.

The crisis in 2000 acted as a “double whammy” for pension assets - large reduction in asset values decreasing the pension assets, and fall in interest rates increasing pension liabilities. The main question here should be “why were these pension plans exposed to such risks in the first place?” Why was there no regulation by the PBGC, the entity insuring pension participants future payments, to limit such activities by pension plans? The PBGC had no regulation (pre 2006) to stop severely underfunded plan sponsors from increasing their benefits to participants even more, nor did it charge these firms higher premiums to do so. As mentioned previously the premiums are the same for every firm and not based on a firm’s credit worthiness or rating, and since the premiums are set by Congress the PBGC has no authority to increase them autonomously. Boyce and Ippolito (2002) propose a model in which private insurers would be responsible for these pension

⁷That was an initial worry upon establishing the PBGC since taxpayers thought they would be liable for any private pension plan underfunding. ERISA made sure this was not an issue, however there still is an implicit guarantee (not dissimilar from a Too-Big-To-Fail story) from Congress to use taxpayer money to bailout PBGC if it comes to that.

⁸80% of all PBGC payouts occurred after 2000 with UAL, TWA, US Airways, Delta Pilot Plans, Polaroid, National Steel and others filing for bankruptcy

obligations and found that these private entities would charge at least double the premiums for the same type of insurance.⁹ While the goal of the PBGC seems noble, the way they have been managing their policies seems like a catastrophe to both pension participants and/or taxpayers.¹⁰

Brown (2007) lists some faults that can be attributed to the PBGC, a couple of which were the failure to properly price insurance premiums to discourage excessive risk taking by plan managers and the failure to promote adequate funding of obligations. If the PBGC wasn't allowed to punish these firms then the market should, in theory, be able to do the job. However, another fault from the PBGC was the failure to promote sufficient pension status disclosure to the market. The PBGC did not have the authority to disclose pension status information to plan participants prior to 2006, even though the PBGC had all the necessary information. Prior to the Pension Protection Act in 2006, the firm was the only entity that had the authority to disclose that information through their Form 5500 filings which weren't necessarily filed at the end of the fiscal year. While the Pension Protection Act of 2006 gave the PBGC some authority in releasing pension plan information, it was confined to pension plan participants and beneficiaries. The act, however, "did not change the timeliness of information to market participants nor did it allow the detailed information of underfunded plans to be public" as per Brown (2007). The 2006 act did not address two major sources of managerial management of pension liabilities, and managers are still able to use actuarial liabilities instead of market valuations, and can also still use (or abuse) the interest rate smoothing techniques available to them.

Having this safety net provided by the government and sponsored by the PBGC that operates based on mandates from Congress decreased the employers' incentives to adequately fund their pension plans. When asked about the PBGC safety net for managers, Professor Norman Stein from Drexel University stated that "the moral hazard is real" but ERISA has enacted rules to

⁹Lewis and Pennacchi (1999) and VenDerHei (1990) say market based premiums would be even higher, around 4 to 6 times the current premiums.

¹⁰Ippolito (2004) argues that as plans are getting more and more underfunded there is an increased likelihood that taxpayers would be called upon to bail them out

mitigate this issue which are discussed in later sections.¹¹ There are arguments from many scholars to eliminate the PBGC altogether. As per Brown (2007), “while serving as chief economist for the PBGC, Ippolito (1987) wrote that one approach to solving the PBGC’s problems would be to simply eliminate the PBGC”. Bodie (1996) states “economic reasoning establishes a rationale for insuring defined-benefit pensions against the risk that the plan sponsor will default on its promise to provide benefits. It does not establish a rationale for the government to provide such insurance”. Other scholars argue that if private insurers take over the job of the PBGC some firms might go bankrupt just from the premiums they might expect to pay to private insurers. Wilcox (2006) takes a middle-of-the-road approach and argues that Congress should enact reforms to the PBGC first and then think of other alternatives later.

2.5 Pension Plan Terminations/Freezes

Not all plans end up going to the PBGC. Aside from the “distress termination” explained in the previous section, ERISA also allows companies that deem their DB plans too costly to undergo a “standard termination” or a “freeze” of their DB plans. Conversions to other types of plans is also allowed by ERISA.

Standard terminations, as mandated by ERISA, state that the pension plan must pay all benefits accrued up to the date of termination to the plan participants. The plan therefore must be fully funded in order to use this method, by definition. Plan sponsors would use the pension plan assets to purchase a sufficient group annuity from an insurance company, or pay out lump sums to plan participants. Plan participants do not face any issues with vesting, and they all become fully vested in their accrued benefits. As such, the main difference between standard and distress terminations is the funded status of the plan.

ERISA allows firms to freeze their DB pension plans. The difference between freezing and terminating a DB plan is that the firm continues to operate the plan as a regular DB plan

¹¹Professor Norman Stein is a nationally recognized authority on pension law, employee benefits and tax law.

except that the benefit accruals are “frozen” for some, or all, the plan participants. The firm is not required to pay out all the benefits accrued to employees immediately following a freeze, whereas all benefits must be paid out in lump sums or annuities in plan terminations. Firms can choose a “soft freeze”, where they choose not to allow new entrants into the DB plan and only keep their current benefit-accruing participants, or they can go with a “hard freeze” where all the participants stop accruing benefits based on their future wages and service either immediately or at a future date. The freeze at a future date serves to soften the blow of the freeze typically for older employees. For example, if a five-year delayed freeze is implemented, participants aged 60 would reach at 65 and have their benefits fully vested. A “hard freeze” is typically the first step towards DB plan termination. The Center for Retirement Research at Boston College suggest that these freezes occur before termination in order for employers to “buy additional time” before accounting for the termination expenses.

Rauh and Stefanescu (2009) compare firms that freeze their plans with firms that don't, and they find the firms that froze their DB plans have significantly higher market leverage than other firms. They also find these firms have lower market to book ratios than non-freeze firms, which suggests they have trouble with the valuation of their growth opportunities. They also find that freeze firms are worse off servicing their debt than non-freeze firms. In terms of pension benefit obligations to employees, they find that firms that freeze have, on average, a higher present value of future benefits than their competitors. The authors state that “freezes appear to be a way for financially weak firms to limit their liabilities that are due to expected future wage increases by employees”.

As discussed above, ERISA has offered firms several different methods in managing their DB plans. The next sections will discuss how managers choose to manage their employees' private DB plans.

2.6 Defined Benefit Pension Plan and Bankruptcy

Several studies highlighted the differences between the goals of ERISA in protecting employee retirement benefits, and the provisions of Chapter 11 of the bankruptcy code which allows the reorganization or rejection of burdensome contracts.¹²

Bankruptcy does not automatically terminate any DB plans a firm has sponsored; as described above, the firm has to file for distress termination following a bankruptcy should they want to terminate their plans. A fully funded plan, for example, can weather the storm of bankruptcy and emerge unscathed if neither party seeks to terminate the plan and let the PBGC takeover during the bankruptcy proceedings.

The usual cases in bankruptcy, however, deal with distress or involuntary termination of a DB plan. Involuntary termination generally would be initiated by the PBGC if they determine that the long term loss to the PBGC would increase substantially if the plan is not terminated.¹³ The plan sponsor, however, would terminate using the distress termination provisions, in which the courts usually rely on one of the necessary distress criteria “the debtor cannot pay debts when due and cannot continue in business unless the pension plan is terminated”.¹⁴

¹²More details on each step of bankruptcy and pension proceedings can be found in Lewis and Melwani (2006)

¹³ERISA states the 4 reasons the PBGC would file for an involuntary termination of the plan as “(1) the plan sponsor has not the plan sponsor has not made its required minimum funding contributions to the plan; (2) the plan does not have sufficient funds to pay benefits when due, (3) there has been a distribution to a substantial owner under section 4043(b)(7) of ERISA,12 or (4) possible long-term loss to the PBGC can reasonably be expected to increase unreasonably if the pension plan is not terminated.”

¹⁴ERISA states that for distress termination rule 4041(c) of ERISA:14 “(a) the plan administrator must provide 60-days advance notice of its intent to terminate to the affected parties (i.e., to plan participants and union representatives); (b) the plan administrator must provide the necessary data and information required by section 4041(c) of ERISA to the PBGC; and (c) the PBGC must determine that the “necessary distress criteria” exist. There are four different types of “necessary distress criteria” under which a party may qualify in order to terminate a pension plan: (i) a liquidation in bankruptcy or insolvency proceedings; (ii) a reorganization in bankruptcy wherein the bankruptcy court has determined that the plan termination is essential to the confirmation of a successful plan of reorganization;

In terms of seniority of PBGC's claims on the pension assets during bankruptcy, the issue is slightly more complex. Should a sponsor miss its minimum funding contribution (exceeding \$1million) to the DB plan before filing for bankruptcy, ERISA mandates that a lien is created on the pension assets in favor of the PBGC, which converts the PBGC status to a secured creditor. If the plan is terminated, the PBGC automatically has a lien on all the pension assets and for the total unfunded benefit liabilities of the plan. If the sponsor, however, misses the minimum funding contribution during bankruptcy or terminates the plan altogether, which is typically the case as per Lewis and Melwani (2006), no lien can be created.¹⁵ The PBGC would not be a secured creditor unless they had obtained an unavoidable lien prior to the plan sponsor's bankruptcy. Generally, the PBGC's claim on the unfunded benefits and minimum funding contributions would be treated as "non-priority general unsecured claims". The sponsor does, however, still pay PBGC insurance premiums yearly until the PBGC becomes the trustee of the pension plan.

2.7 Private Defined Benefit Pension Plans

Pension accounting is a delicate field that deals with large sums of money, and because of size of these funds the Financial Accounting Standards Board (FASB) issued several rules to regulate the management of such funds. FAS No. 87, "Employer's Accounting for Pensions" was rolled out in 1985 to regulate the recognition of pension costs/expenses and how assets and liabilities would be accounted for in financial statements.¹⁶ FASB faced significant backlash from Corporate America prior to rolling out FAS No. 87, and accepted defeat in including compromises to please (iii) the debtor cannot pay debts when due and cannot continue in business unless the pension plan is terminated, or (iv) costs of maintaining the plan have become unreasonably burdensome due solely to a declining workforce.

¹⁵Lewis and Melwani (2006) also state that "if a lien is perfected within 90 days prior to the bankruptcy filing, the debtor may have the ability to avoid such a lien as a preferential transfer under section 547 of the Bankruptcy Code."

¹⁶As per Zion and Carache (2002), the rules associated with FAS 87 were "convoluted, complicated, misleading, and for many it just doesn't make sense."

these firms.¹⁷

The liability associated with any DB pension plan reflects the present value of all future payments due to its employees. As mentioned above, these future payments are the result of an equation that depends on employees' age, tenure, and salary. On the assets side, the firm has pension assets managed in the interest of the employees specifically to fund these liabilities. The firms, in theory, are supposed to make contributions to the fund so that the pension assets cover the liabilities completely and record these contributions as a pension expense, but because of reported operating income smoothing these contributions themselves follow certain smoothing mechanisms. US law requires firms to make these contributions.¹⁸ If the market value of the assets is larger than present value of the liabilities, then the plan is overfunded and no more contributions need to be made.¹⁹ Should the liabilities exceed the assets, the plan is said to be underfunded and is required by law to make contributions to the fund.²⁰

There are incentives for the firm to fund their sponsored pension plan, as Clifton et al (2003) show that credit rating agencies may take these unfunded liabilities into account, which may in turn raise a firm's cost of capital via low credit ratings. Other incentives are straight out of pocket costs such as insurance premiums to the Pension Benefit Guaranty Corporation (PBGC).²¹ As per

¹⁷Zion and Carache (2002) state 3 compromises in undertaken by FASB after pressure from Corporate America: 1) Removing initial pension asset/liability from balance sheet and amortizing/expensing it over time, 2) Amortize prior service costs and remove them from balance sheet, and 3) Reporting expected returns on plan assets as opposed to actual returns, and only recognize the difference between expected and actual when difference grows larger than 10% of pension liabilities or assets, whichever is larger

¹⁸The pension contributions, whether made in cash, stock, or debt, are tax deductible, but the pension expense recorded on the income statement is not. Of course tax rules set a limit to the amount of contributions that are deductible per year.

¹⁹Voluntary contributions can be made up to a certain extent, after which firms lose the favorable tax status of these contributions.

²⁰The Employee Retirement Income Security Act (ERISA) of 1974 stipulates that underfunded plan sponsors must make annual contributions equal to the present value of the pension benefits accrued during the year plus a fraction of the funding shortfall. This unfunded liability is usually amortized for a period of 5-30 years.

²¹As per the PBGC's website, they are a "federal agency created by ERISA to protect pension benefits in private-

Rauh (2006), overfunded firms are exempt from variable PBGC premiums.²²

In order to smooth annual reporting for firms from yearly fluctuations in market value of the pension assets, FASB introduced an assumed rate of return on this pension assets fund as opposed to using the realized return on the fund. This rate is adjusted at the fund manager's discretion and follows some tax guidelines regarding such changes. Managers have the responsibility of setting the assumed rate of returns on plan assets, while pension plan actuaries have the responsibility of setting the discount rates for pension liabilities, which are usually reviewed by external auditors as well. It is worth noting that expected rates of return on plan assets do not affect funded status of a pension plan, since pension assets are measured typically at fair value/market value. They do affect, however, pension costs/expenses as reported on an income statement. The discount rates, however, do affect funded status directly since they are used to value the pension plan projected obligations.

The SEC in 1993 made clear that the discount rates used should be closely related to "high quality corporate debt yields" in order to avoid rate assumptions that were not reflective of market yields. Zion and Carache (2002) show that these discount rates do follow closely Moody's Aa corporate bond yield, with the largest deviation from that never exceeding than 55 basis points for firms in the S&P 500.²³ As per Bergstresser, Desai and Rauh (2006), managers have significantly more leeway over setting their assumed rates of return on the plan assets than do the actuaries in setting their discount rates. These discount rates assumptions still have some flexibility, however, and a Businessweek Magazine article states that "companies are not willing to change their projections substantially because they do not want to create earnings volatility, and external auditor defined benefit plans. If a plan ends without sufficient money to pay all benefits, PBGC's insurance program will pay the benefit provided by the pension plan up to the limits set by law".

²²PBGC set these premiums at \$19 per employee per year, plus \$9 per \$1000 shortfall as per Rauh (2006)

²³Some firms do have discount rates different than what the SEC requires because of older employee workforce (lower discount rates), or international pension plans that mimic different countries corporate bond yields. SEC recommends using a rate close to that of two highest yields given by a recognized rating agency, and plan sponsors tend to go for Aa bonds since they are at the higher ends of the range.

tors aren't challenging them".²⁴ The article goes on to say some "estimates are overly optimistic, and suspect that auditors too often turn a blind eye". Moreover, these smoothing mechanisms introduced in FAS No. 87, which were initially intended to reduce earnings volatility, led to financial statements that can be classified as misleading because of the interest rates manipulation by managers, as per Zion and Carache (2002).

Bergstresser, Desai and Rauh (2006) also look at how managers manipulate these rates of return to inflate their reported earnings and also capitalize on these changes. They find significant evidence on managerial manipulation, and find that managers use "higher assumed rates of return when they prepare to acquire other firms, when they are near critical earnings thresholds and when their managers exercise stock options". As an example of how these changes affect a firm's bottom line, they find that nearly 5% of IBM's pretax income in 2000 and 2001 was a result of the 50 basis point increase in the assumed rate of return on pension assets in 2000.²⁵ Rauh (2006) also looks at how the pension contributions affect investment policy, and finds that capital expenditures decline with increasing mandatory contributions to DB plans, with the effect more evident in firms that have lower credit ratings and face financial constraints. With more and more managerial manipulation and mismanagement of such pension plans that ultimately limit value-enhancing corporate activities, firms end up either switching DB plans to defined contribution (DC) plans or freeze/terminate their DB plans totally. Rauh and Stefanescu (2009) state that should a firm switch to a DC plan due to the deteriorating financial health of the sponsor the "total benefits do not immediately decline as contributions to DC plans increase immediately". They do find firms that freeze their plans "experience significant reductions in the liabilities of the DB plans". Of course, all of the aforementioned papers study the effects of mismanagement and manipulation on private DB plans and not state sponsored plans.²⁶

²⁴Businessweek article "Pumped Up Pensions" published on October 24th, 2004

²⁵IBM, coincidentally, changed that assumed rate of return, which is assumed to be a long-term measure, four times between 1991 and 2002.

²⁶State sponsored DB plans follow different rules and guidelines. Novy-Marx and Rauh (2010) look at the present value of public pensions liabilities as of 2009 and find that value to be \$3.2 trillion. These plans are subject to

To put this managerial manipulation into perspective, Zion and Carache (2002) estimate the real earnings associated with pension income and the reported smoothed earnings. They estimate that, in 2001, S&P 500 firms transformed \$90 billion loss on pension assets into a \$104 billion income. In terms of rates of return, they find that the median expected rate of return used in these firms in 2001 was 9.20%, and they stipulate that the realized return associated with these pension funds were, in actuality, a loss of 7.50%.²⁷

The DB plan underfundedness is shown to affect corporate activities in M&A activities as well. Shleifer and Summers (1988) theorized that hostile takeovers transfer pension plan related wealth from workers to shareholders and violating implicit labor contracts. In a more technical paper by Kumar (2006) that studies the impact of pension plan funding and M&A activity, he shows that poor funding status of target firms decreases the likelihood of the firm being acquired. Pontiff, Shleifer, and Weisbach (1990) study takeover gains and find that pension plan reversions after takeovers, in some cases, explain a significant portion of takeover premium. They find that pension plan reversions in takeovers account for nearly 13% of the takeover premium. Bhagat et al (1990) look specifically at hostile takeovers and find that pension plan terminations post-takeover are a significant source of gains but are unlikely to be the main motive behind the acquisition. Bowers and Moore (1995) show that there is a positive relationship between excess pension assets and target firm and combined firms abnormal returns, consistent with the argument that excess pension assets act as financial slack that investors re-value in acquisitions.

One might argue whether or not investors fully process such mismanagement and underfundedness of a firm's pension liabilities, especially since past accounting research has shown that information complexity and presentation can affect analysts' information gathering process (Plumlee 2003). Bulow, Morck, and Summers (1987) find that stock market valuations reasonably reflect firms pension funding situations, and show that managers are better off funding their plans since they also find no support that investors ignore pension liabilities when valuing firms. Coronado and

different laws, especially when it comes to plan termination/freeses.

²⁷Their research paper is aptly titled "The Magic of Pension Accounting".

Sharpe (2003) and Franzoni and Marin (2006) show that underfundedness in itself is not sufficient for investors to fully understand pension plan's impacts on future earnings. Carroll and Neihaus (1998) showed that the levels of pension plan assets and liabilities are important and may affect a firm's value similar to regular assets and liabilities. More recently Picconi (2006) also shows that neither investors nor analysts fully incorporate the effects of such information when it is reported, but do incorporate it after they observe the effects in subsequent quarterly earnings. Zion and Carache (2002) state that "investors are concerned about the increase in cash contributions that the companies would have to make to their pension plan if their funded status continues to decline". This is also apparent in the accounting industry where FASB released a revised version of SFAS 132 in December 2003 (and revised it again in 2008) stating new rules in pension disclosures to "provide information that would better serve the users of financial statements' needs". These amendments only addressed disclosure rules and not the measurement/recognition of pension and post-retirement benefits.²⁸

It is evident from the literature that firms do have significant discretion over how their DB pension plans are managed. However, to my knowledge, there has not been a paper that discusses the relationship between managerial entrenchment and corporate pension policy. It is, therefore, interesting to see whether and/or how a manager uses these pension funds to benefit not only from pecuniary returns (as documented above) but also from the intangible aspects, and whether or not a manager truly seeks to live a quiet life.

²⁸In 1985, FASB issued SFAS 87 which stated that fair values of both the pension assets and liabilities be disclosed in the financial statement footnotes. The 1998 introduction of SFAS 132 was aimed at addressing investors/analysts concerns regarding the rate of return on pension plan assets, the employer's funded status, and also estimating the impact of pension cost on net income. The 2008 revision required "more detailed disclosure, including further disaggregation of asset categories and improved qualitative discussion about risk exposures in the asset portfolio.

Chapter 3

Agency Theory and Corporate Governance

3.1 Agency Theory

Jensen and Meckling (1976) look at the agency problem surrounding a manager not only from “the benefits he derives from pecuniary returns but also the utility generated by various non-pecuniary aspects of his entrepreneurial activities” including personal relations with employees such as “love, respect, etc..”. As such, it is important to realize that some managers value good relations with employees and also value their employees’ loyalty. Good relations with employees can be achieved through higher wages, better health benefits, or, in our case, better managed pension funds.

Cronqvist et al (2009) use Swedish employee data and show that “CEOs with more control pay their workers more”, and that CEOs “pay more to employees geographically closer to the headquarters, and associated with conflict-inclined unions”. This result suggests that entrenched managers pay their employees more to enjoy certain private benefits, such as better relations with employees. The fact that they pay more employees associated with conflict-inclined unions proves all the more that managers enjoy benefits of lower effort in wage bargaining and want to avoid conflicts, a result not dissimilar from Bertrand and Mullainathan (2003) “The Quiet Life” result. The Bureau of Labor Statistics state “unionized private sector employees are substantially more likely than their non-unionized counterparts to have access to DB plans as well as retiree health

insurance”.²⁹ Higher wages lead to more loyalty and respect; this follows exactly what Jensen and Meckling (1976) call “non-pecuniary” benefits, and opens up the way to look at other ways managers derive such benefits. Their paper was one of the first papers that empirically showed the existence of such benefits and document their economic importance.

Bertrand and Mullainathan (2003) also look at managerial entrenchment in the form of insulation from takeovers through state adoption of anti-takeover laws using US firm and plant level data. They show that when managers are insulated from such threats “worker wages (especially those of white-collar workers) rise”. They also show that destruction of old plants fall, but so does the creation of new plants, resulting in an insignificant change in firm size. This result, contrary to previous results relating entrenched CEOs with empire building, shows that CEOs actually seek to enjoy the “quiet life”. They hypothesize that higher wages and lower effort in wage bargaining with employees may be a way for managers “to buy peace with their workers”.

Higher wages can be another form of takeover insulation. Pagano and Volpin (2005) show that if a manager has high private benefits with low ownership in the firm, managers and workers can be allies against takeovers. They show that this can be done though long-term labor contracts with higher wages directed towards the employees. Workers will try to protect their wages, and as such will resist takeover threats and become natural allies to managers. While this may be true with employee labor contracts, managers can terminate defined benefit pension funds and convert them to other types of plans (this will be explained in the following sections). Relating Pagano and Volpin’s (2005) paper with the theory behind this study might lead to different conclusions. Nevertheless, their results stand with regular wages and long term labor contracts and is an important result in this growing field. Pagano and Volpin (2005) also look at managerial cash flow rights and employee wages, and find a negative relationship between managerial equity stake and wages. This result is of great relevance to my research, and it is interesting to see how managers promise to pay their employees in future pensions relative to their ownership stake in the firm.

While the above mentioned literature shows that managers search for the quiet life, it is

²⁹National Compensation Survey 2010

conceivable that managers would not look to pay their employees well just for the love and respect relationship. One can easily see a manager looking to have a better relationship with shareholders by directing a firm's returns to them and minimally fund the employees pension funds. After all it is the shareholders that have the biggest say in matters relating to the firm and especially regarding board composition, which in turn appoint the managers at the firm. A manager can also choose to direct returns towards increasing stock price which in return makes the shareholders, the board, and even himself happy. In other words, there are enough incentives for a manager not to overpay his employees relative to other firms in the industry.

All the previous papers support in one way or another Jensen and Meckling's claims on managers benefiting from non-pecuniary benefits. This paper will try to add to that growing literature by studying how differently governed firms manage their rank-and-file employees' pension funds.

3.2 Corporate Governance

Endogeneity concerns plague any study on corporate governance. It is very difficult to argue any issue and assume causality solely on better or worse governance within firms since there are many unobservable risk dimensions that might be interfering with your model. As shown in Bhagat and Bolton (2008), previous papers stated a causal relationship between governance and future firm performance such as Gompers, Ishii and Metrick (GIM 2003), and Bebchuk, Cohen and Ferrell (BCF 2004), but later the relationship was proven to be inaccurate due to the endogenous nature of governance and/or due to sample period specificity, the latter shown in Core, Guay and Rusticus (2005). As per Bhagat and Bolton (2008), it is clear that one needs to account for endogeneity in models that incorporate governance, and they propose a series of simultaneous equations to adjust for that.

Another pitfall is the actual governance measure used. GIM (2003) constructed a measure (which I will call the G-Index henceforth) compiled from the Investor Responsibility Research

Center (IRRC) that assigns scores based on shareholder rights-decreasing provisions; the more the provisions, the larger the measure corresponding to weaker shareholder rights. The G-Index is an equally-weighted index of 24 corporate governance provisions compiled by the IRRC.

Several papers challenged the equal weighting of each provision, arguing that some provisions matter more than others and some might actually be correlated with each other. As such, BCF (2004) constructed an “entrenchment index” (E-index, henceforth), and they identify 6 provisions within the G-Index’s 24 that they hypothesize play an important role in the governance-firm performance relationship. The E-Index is comprised of 4 shareholder power-limiting provisions and 2 hostile takeover-impeding provisions: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments. Similar to the G-Index, the higher the score (from 0-6) on the firm’s E-Index, the more entrenched a manager is considered to be.

The aforementioned indices are constantly used in the corporate governance literature even with their deficiencies. Other papers argue that simpler measures of governance were needed that did not entail the ad hoc nature of assuming different weights for different shareholder/merger provisions. The weighting assumption in itself opens up a debate on why and how each provision was weighted, whether equally weighted indices or otherwise. Other simpler governance indices were proposed in Bhagat and Bolton (2008), such as the dollar ownership of board members. They argue that this measure is “simple, intuitive, less prone to measurement error, and not subject to the problem of weighting a multitude of governance provisions in constructing a governance index”. They discuss the positive implications of such a measure since boards have the final say in all major decisions relating to the firm including governance itself. Appropriate board ownership can give the director an incentive to vigorously and effectively monitor important decisions in the corporation.

While it is the manager’s fiduciary duty to solely manage the DB pension plans in the interest of the beneficiaries³⁰, one can easily find agency problems and provide anecdotal evidence on how managers can, and might, manipulate these funds for their own personal benefits. So how would

³⁰Corporate executives are usually the trustees on these DB plans

good governance affect pension plan management? Taking into consideration all the stakeholders of a firm one can argue based on efficiency wage theory, and other research supporting the notion that pensions induce more effort from employees and help with employee monitoring, that offering pension plans would be the right decision and might lead to increasing profits through increased effort and productivity. One can also argue, conversely, that directing more funds to employees and less to shareholders can generate many benefits solely to managers and create agency problems. Sponsoring a DB plan means the firm pledges to contribute funds towards funding the future liabilities promised to the employees over and above their salary and other compensation, which offsets what shareholders would receive had there not been any DB plans for employees in the first place. Table 1 provides a summary of the advantages and disadvantages of sponsoring a DB plan the main stakeholders involved.

Although not much has been covered on corporate governance and pension policy, a recent article by Phan and Hedge (2012) shows that better governed firms typically allocate more of pension assets in risky securities, suggesting that shareholders would prefer the DB plan fund itself via equity returns and not through cash contributions by the firm. Anantharaman and Lee (2014) show that these allocations are related to CEO compensation, and they find evidence that risk-shifting (underfund pension plans and allocate more assets into riskier securities) is positively related to managerial compensation structures that create higher wealth-risk sensitivity (option vega). They also show the effect is stronger for firms in financial distress.

In this paper I will use dollar ownership of board members, as proposed in Bhagat and Bolton (2008), as my main proxy for corporate governance to see how entrenched managers use their employees' DB pension plans for their own personal benefits. I will also use the G-Index, the E-Index, CEO/Chair duality, and a measure of board independence to further analyze the findings. Other governance measures, such as outside blockholders, will be used to check the robustness of the results but will not be part of the main analysis because of the lack of enough data.

Chapter 4

Data

4.1 Data Sources and Definition of Variables

To my knowledge this is the first paper that merges together agency theory, corporate governance and pension plan management. As such, this paper draws on many different data sources to compile a unique dataset that is able to capture the effects of corporate governance and managerial entrenchment on defined benefit pension plan management. The following sections will describe the dataset and state their sources, and Appendix A has a complete set of definitions for all variables used in this study.

4.1.1 Governance Measures

As mentioned above, I use 6 different governance measures in this paper. The director ownership (*LogMedOwner*) data was obtained from RiskMetrics Directors database (formerly know as the IRRC Takeover Defense database), with the data ranging from 1998 to 2006. The *G – Index* was obtained from the RiskMetrics Governance database with the data ranging from 1998 to 2006. The *E – Index* data was obtained from Lucian Bebchuck’s website, and it too covers the years 1998-2006. Independent director (*PercentIndep*) data was obtained from RiskMetrics as well, and covers the years 1998-2006. *CEO – ChairDuality* is also another governance variable used in the analysis and the data ranges from 1998-2006. Outside blockholder (*SumOut*) data was obtained from WRDS database, and the data ranges from 1998-2001.

Since *LogMedOwner* is a governance measure that was introduced by Bhagat and Bolton (2008) and is used in my analysis, I will use the Bhagat and Bolton (2008) governance dataset that has 5 of the 6 governance measures (outside blockholder data excluded) in order to have a better comparison with the results produced in their paper. Their dataset ranges between 1998-2006. All data was winsorized at the 1% level.

4.1.2 CEO and Directors Characteristics and Compensation

Data on CEO characteristics (age, tenure etc...) and compensation (salary, bonus, shares owned, etc...) were obtained from Compustat's Executive Compensation database. The data covers the years 1998-2006. More specifically, I use the database to compute several different CEO compensation variables such as the market value of the shares owned by the CEO (*LogCEOShares*) and the percent of the total compensation that is guaranteed (*%Salary*), among other variables. Director characteristics (inside director, outside director, linked, etc..) and their respective compensation were obtained from Risk Metrics Database and the data covers the years 1998-2006. All data was winsorized at the 1% level.

4.1.3 Pension and Financial Data

Firm specific data, such as pension data and financial information, were obtained from Compustat. I use Compustat's financial database to compute several firm specific variables in my analysis to control for firm age (*FirmAge*), leverage (*Leverage*), firm size and growth (*LogSale* and *SalesGrowth*), as well as the growth opportunities available (*TobinsQ*). I also use firm profitability (*ROA*) in my analysis, as well as firm gross and profit margins to control for market concentration (*IndGM* and *IndPM*).³¹

³¹These market concentration measures are widely assumed to be superior to other measures such as the Herfindahl-Hirschman (HHI) Index obtained from Compustat and from the US Census data. Compustat HHI only covers public

Compustat provides aggregate annual data on pensions (total pension assets, total pension liabilities, etc...) and does not provide details on each specific pension fund within a firm. All data was winsorized at the 1% level. Using this aggregate data ranging from 1998 to 2006, I then compute the different measures related to pension plan management such as the funding status of the pension plan and its volatility (*FundedStatus* and *FundedStatusVolatility*); the levels of pension plan assets and liabilities (*LogPenAssets* and *LogPenLiabs*); the pension asset and liabilities levels on a per employee basis (*LogPaPerEmp* and *LogPlPerEmp*); the respective yearly growth in the aggregate pension asset and liabilities (ΔLogPen and $\Delta\text{LogPenLiabs}$). I also compute several other variables to study firms with pension asset rates of returns set above the sample median (*ExcessROR*) and assumed discount rates on their future pension obligations set below the sample median (*LowDisc*). I also look compute a variables that separate firms funding their pension plans better than the median firm (*WellFunded*).

4.1.4 Firm Output and Employee Productivity

Lazear (1986) posits that pension plans increase employee productivity within a firm, thereby increasing output.. As such, I use output and productivity datasets that were obtained from the Bureau of Labor Statistics (BLS) data files. The BLS files include output and productivity measures on an industry basis. Total industry output (*LogOutput*) as well as output scaled by the number of employees (*LogProdPerEmp*) and output scaled by the number of hours of labor input (*LogProdPerHour*) as well as labor share (*LogLaborShare*) were computed using the BLS data files.

firms and does not take into account more prominent private firms within industries, and while the US Census HHI might account for private firms, it only contains information on manufacturing firms. HHI also assumes an exogenous industry structure, and as per Lunn (2014) “the exogenous nature of the classification neglects strategic threats of potential entrants that might cause concentrated industries to behave in a highly competitive manner”.

4.1.5 Union Membership Data and Employee Tenure

Union membership and coverage data were obtained from www.unionstats.com, a database constructed by Barry T. Hirsch and David A. Macpherson (Hirsch and Macpherson (2003)). As per their website, the database “is an Internet data resource providing private and public sector labor union membership, coverage, and density estimates compiled from the Current Population Survey (CPS), a monthly household survey, using BLS methods”. I used their union membership data by industry starting from 1998 to 2006. I use both the percent membership in unions (*PerMem*) and their percent covered by unions (*PerCov*) variables listed on their website.

I also obtained average employee tenure per industry (*Tenure*) using the Bureau of Labor Statistics (BLS) data center. The data ranges from 2002 to 2006. All data was winsorized at the 1% level.

4.1.6 Best Companies List

Fortune Magazine’s “100 Best Companies To Work For in America” list was obtained from Alex Edmans’ personal website.³² Fortune Magazine publishes a yearly list of the “100 best companies to work for in America” since 1998 till the present day. The list was first published by Levering, Moskowitz, and Katz (1984), updated in Levering and Moskowitz (1993) and published yearly by Fortune magazine since 1998. As per Edmans (2010), “two-thirds of the score comes from employee responses to a 57-question survey created by the Great Places to Work Institute in San Francisco. The survey covers topics such as attitudes towards management, job satisfaction, fairness and camaraderie. The remaining one-third comes from the Institute’s evaluation of factors such as a company’s demographic makeup, pay and benefits programs, and culture.” As such, Edmans’ employee satisfaction variable (*BC*) will be my main measure of employee satisfaction.

³²Alex Edmans at London Business School <http://faculty.london.edu/aedmans/>

4.1.7 Marginal Tax Rates

Theory suggests tax rates play a large role in pension plan management since pension plan contributions are tax deductible. As such, I use marginal tax rate data obtained from John Graham's personal website.³³ The data follows his simulated data as explained in Graham and Mills (2007) and covers the years 1998-2006. Based on his description, I use the tax rates after deductions for depreciation, interest, and leasing expenses (*MTR*).³⁴

4.2 Summary Statistics

The data consists of 2,647 firms over a range of 8 years, from 1998 - 2006 depending on data availability. Of these firms, 1,354 have sponsored a DB plan for some period of time in the dataset (some of them sponsored and froze plans, others did not have any DB plans and subsequently sponsored some). As stated previously firms may have several DB plans on their books and manage them in different ways, but this dataset does not look at single DB plans since, unfortunately, Compustat only records aggregate data on pensions. The sample universe is restricted to firms that have at least one of the 6 governance measures used in the analysis.

Panels A, B, and C in Table 2 show the summary statistics for the data - panel A shows the summary statistics for pension data, panel B shows summary statistics for financial data, and panel C shows summary statistics for the governance measures used in this study. Tables 3 and 4 separate the data into firms that sponsor a DB plan and firms that do not, respectively, and gives the summary statistics of each group. In terms of firm-year observations, the sample has 23,382 observations. In terms of firm characteristics, panel B suggests that firms that sponsor DB plans are usually larger, more profitable, more levered, older firms with lower growth. Panel C suggests that firms sponsoring DB plans usually have less governance as measured by all the indices, and

³³John Graham at Duke University Fuqua School of Business <https://faculty.fuqua.duke.edu/~jgraham/>

³⁴I also used the simulated tax rates before these deductions and find similar results

t-tests show the differences in the means for these variables are different from 0.

Figures 1 through 9 look at the pension data more closely. Figures 1, 2, 3 and 4 show the overall average and median pension assets and liabilities of the firms in our dataset per year. As is clear in the figures, firms on average had more pension assets than liabilities which meant the pension plans were funded quite well initially, most probably with help from the tech boom in the 90s. As time goes on, it is clear that the liabilities were growing faster than the assets and as such there is a dip in pension assets after the tech bubble crash and the downturn in the economy post 9/11. This decline in pension assets stems from the fact that most of these pension funds were stacked with equity as opposed to fixed-income securities or cash equivalents. Studying the data further, figures 5 and 6 show the median pension assets and liabilities scaled by the number of employees and, as expected, it follows the same pattern as the previous figures; pension assets per employee exceeded pension liabilities in the 90s, and the tech bubble crash and post 9/11 downturn caused liabilities to surge ahead while assets took a rather large hit. Figures 7 and 8 show the average and median funded status of the firms in the dataset, and the dip in assets corresponds to a large decrease in funded status of the firms; before the crash the average/median pension plans were totally funded, and post crash the average/median pension plans were unfunded.³⁵ Figure 9 looks at the assumed discount rates used by firms in the dataset compared to the Moody's Aa long term bond yields, and it is clear that they do follow the same trend throughout the years as recommended by the SEC and shown in Zion and Carache (2002) and Brown, Clark and Rauh (2011). The figure also shows that while the data follows the trend there is some positive deviation from the exact bond yield, as expected.

One interesting fact from the data comes from the governance variables. I test how the governance variables are correlated, if at all, with each other and find surprising results in Table 5. All the governance indices move together except the *PercentIndep* governance variable. As can be seen in Table 5, the *PercentIndep* variable is *negatively* correlated with all the other variables.

³⁵The red line in figures 7 and 8 corresponds to a plan being just funded since our fundedness measure is $PenAssets/PenLiabs$.

This result was surprising at first, but upon further examination of the issue I found that this negative correlation was in line with Bhagat and Bolton (2008), the original people that compiled this governance dataset. It is my assumption that while firms may concentrate their efforts on having good corporate governance procedures they may not over-reach when it comes to different procedures. In other words, firms with higher percentages of independent directors may feel they do not need to increase the median ownership of these directors, nor do they need the oversight of an outside blockholder, and feel they have a sufficient level of corporate governance based on their point of view. This “How Much Governance is Enough?” is in itself another topic to discuss and study in a separate research paper altogether.

Chapter 5

Methodology and Results

In this section, I will examine the relationship between a firm's corporate governance and their DB pension plan management. As mentioned above, not all firms have DB plans for their employees; firms may have other types of plans such as a defined contribution, a cash balance plan, and other variations of such plans. As such, it is essential to realize that a firm chooses whether or not to sponsor a DB plan for their employees; in other words a firm self-selects into its preferred choice. This choice leads us to use a Heckman model to correct for this self-selection.

$$Pen_{i,t} = \alpha_0 + \alpha_1 Gov_{i,t-1} + \alpha_2 X_{i,t-1} + \alpha_3 Z_{i,t-1} + \epsilon \quad (5.1)$$

$$Y_{i,t} = \beta_0 + \beta_1 Gov_{i,t-1} + \beta_2 X_{2,i,t-1} + \eta \quad (5.2)$$

where Pen is an indicator variable of whether or not a firm sponsors a DB plan, and $Y_{i,t}$ represents the different dependent variables depicting pension management ($FundedStatus$, $Log\Delta PenAssets$, etc...) that I will be examining. The error terms, ϵ and η , are assumed to follow a bivariate normal distribution. Since the net benefit of sponsoring a DB plan is unobservable, I will assume that a firm chooses to sponsor a DB plan when the net benefit is positive, and conversely chooses not to sponsor a DB plan when the net benefit is negative. As such, Pen equals 1 if the firm sponsors a DB plan, and 0 if it doesn't.

Equation (1) corrects for self selection in the 1st stage of the Heckman model via a probit regression; Gov is a measure of the firm's governance and I will be using 6 different variables to

measure governance in a firm, X is a vector of independent variables used in both stages, and Z is a vector of identification variables used in the selection equation only. Equation (2) then follows the model in the 2nd stage and examines the effect of governance on DB plan management.

With such a model dealing with selectivity issues, one always tries to eliminate endogeneity concerns via a strong instrumental variable. The vector Z in Equation (1), for identification purposes, requires an instrument that is associated with a firm's decision to sponsor a DB plan, but not directly correlated with any of the DB plan management variables. It should be stated that it is not essential to have an instrument in the first stage of a Heckman self-selection model since the first stage estimation is non-linear. It is also difficult to rely solely on the non-linearity of the first stage for identification purposes since the inverse Mills ratio is relatively linear in some parts of its domain. So in order to avoid a possible multi-collinearity problem in the second stage, vector Z will include *LogProdPerEmp*, the log of the productivity per employee in firms within the same two-digit SIC industry. Efficiency wage theory has shown that pensions may increase employee productivity that would probably lead to increased profits and larger firm output. As such, employee productivity would definitely be related to the existence of a DB plan, but it would not necessarily directly affect how a firm manages such a plan in terms of funding status and other corporate pension policies. *LogProd* (industry productivity), *LogOutput* (industry output), and *LogLaborShare* (industry labor share) will also be used as instruments in robustness checks since they too follow efficiency wage theory and would affect the existence of a DB plan but not necessarily affect corporate pension policy. Other weaker instruments such as *MeanDBSIC2yr*, the average number of firms sponsoring a DB plan in the same two-digit SIC industry classification excluding the firm itself, will also be used as well.³⁵ Since both stages involve pension related dependent variables, it is extremely difficult to find an instrument that is completely exogenous. Also, since these instruments act to add an additional layer of identification over and above the non-linearity of the probit model used in Equation (1), any doubts surrounding the validity of the

³⁵The average number of firms in the same industry sponsoring a plan should affect a firm's decision to sponsor a DB plan and not the way a firm might manage such a plan.

instruments should be allayed.

The vector X contains all the independent variables used in both equations. It includes a control for firm size, $LogSales$; $SalesGrowth$ controls for the concurrent growth rate of the firm; $TobinsQ$, a common proxy for firms growth opportunities; $Permem$ controls for the effect of unions in pension management; $Leverage$ controls for a firms long term debt scaled by assets as per Shivdasani and Stefanescu (2009); $MarketReturn$ controls for the time trend in the data and uses the value weighted yearly return on the S&P 500 index; ROA measures the firms performance; $LogFirmAge$ controls for a firm's age; MTR controls for a firm's marginal tax rate; BC acts as a proxy for employee satisfaction; $IndPM$ and $IndGM$ control for industry competition and market concentration; and Gov is our main measure and it measures a firm's governance using the governance measures listed above.

5.1 1st Stage - Pension Choice

Table 6 shows the result of the pension choice probit regression. In terms of firm characteristics, larger firms (proxied by sales), older firms, firms with lower growth opportunities, and more levered firms are more likely to sponsor a DB plan. In terms of unionization, the data follows theory in the sense that firms in more unionized industries are more likely to sponsor a DB plan. Theory suggests that tax benefits play a large role in pension policy, and I find that firms with higher marginal tax rates are more likely to sponsor DB plans. Efficiency wage theory suggests that pensions increase productivity, and I do find a positive relationship between employee productivity and existence of DB plans in Table 6. The data also shows that companies listed in Fortune Magazine's "100 Best Companies to Work for in America" list are less likely to sponsor DB plans, and I also find that lower product market competition within a firm's industry increases the likelihood of sponsoring a DB plan.

What is interesting here is the governance result: five of the six governance measures significantly show that *poorly* governed firms are *more* likely to sponsor DB plans. This is the first

indication of entrenched managers electing to pay employees, albeit in future payments, so that a manager may extract some personal benefit. This entrenched manager/DB plan result implies something in the line of Cronqvist et al (2009) results, and also suggests managerial behavior in line with Bertrand and Mullainathan's (2003) quiet life result. These results are robust to different instruments (as mentioned above) and lags of these instruments.

5.2 2nd Stage - Pension Management

In order to study this further, I look at several different variables that reflect corporate pension policy and how these managers pay their employee pensions. As mentioned above, in the second stage of the Heckman model I look at how different governed firms fund their DB plans (*FundedStatus*) and the volatility of their funded status (*FundedStatusVolatility*), how they manage their growth in DB plan assets (ΔLogPen), growth in DB plan liabilities (ΔLogPL), the level of DB plan assets (*LogPenAssets*), the level of DB plan liabilities (*LogPenLiabs*), the DB plan assets per employee (*LogPaPerEmp*) and the DB plan liabilities per employee (*LogPlPerEmp*). To the extent that pension payments are directly associated with employees, the employee scaled variables are necessary to my study. These variables were also scaled by firm assets and the results were robust to the different specification. As discussed above, managers can have significant discretion on some aspects of pension plan management, including setting the discount rates for future obligations and rates of return for pension assets. As such, I also study the impact of governance on other variables such as *WellFunded*, *LowDisc* and *ExcessROR*. The following sections will break down the pension management dependent variables in order to have a clearer picture of the results, and a discussion section after the results will explain the findings further.

5.2.1 Funded Status

The first analysis looks at a DB plan's *FundedStatus*, and the results can be found in Table 7. Recall that the *FundedStatus* variable takes into account all future pension benefit obligations. The table shows results using the six different governance variables mentioned in previous sections. Starting at column number (1) in Table 7, I find that larger and older firms fund their DB plans *better*, holding all else constant. As theory suggests, *more* unionized firms fund their DB plans *it*better, and that is also evident in the results shown in column (1). Table 7 also shows that funded status of a firm is strongly correlated with the market return. Firms in less competitive industries, as proxied by *IndGM*, show better funded status than firms in more competitive industries on average. The interesting result here is associated with the governance variable; still looking at column (1) in Table 7, I find that *poorly* governed firms, as measured by *LogMedOwner*, have *better* funded status on their DB plans. This result shows that while entrenched managers may carry more DB plan liabilities (as will be discussed in later sections), they have enough DB plan assets to cover them. All the previous results are significant at the 1% level. The funded status result in Table 7 is robust to different measures of governance and most are significant at 1% level as well. This can be seen in columns (2) through (6) in Table 7; *poorly* governed firms have a *better* funded status than better governed firms.

Other specifications of governance in Table 7 shed some light on other firm characteristics. As can be seen in columns (2) through (6), firms with *more* growth in sales fund their DB plans *better*. Less levered firms on average tend to have *better* funded status. Looking at *ROA*, I also find that *more* profitable firms have *better* funded status on average in some specifications in Table 7.

5.2.2 Pension Plan Assets

Table 8 shows the effect of governance on the level of pension plan assets. Again, starting with column (1) in Table 8 I find the larger, and older, the firm the more pension assets a firm has. Once again one would expect these pension assets to be highly positively correlated with market returns, and that is evident as well in Table 8. Firms with *more* growth opportunities, and *less* profitable firms show higher levels of pension assets. *More* unionized firms have *more* pension assets on their books. Firms in *less* competitive industries carry *more* pension assets on their books, as proxied by *IndGM*. I also find evidence of firms being in Fortune Magazine’s “100 Best Companies To Work For in America” list have *lower* levels of pension assets. Although not consistent through all the specifications in columns (1) though (6) I do find some evidence that *less* levered firms do have *more* pension assets. The main result in the table shows that *poorly* governed firms have *more* pension assets, holding all else constant. The results of other governance variables are in line with column (1) and they also show that *poorly* governed firms do have *more* pension assets, and that is evident in columns (2) through (6) in Table 8.

5.2.3 Pension Plan Assets per Employee

Table 9 shows the results using DB plan assets scaled by the number of employees. Looking at column (1), I find that, holding everything else constant, firms with *lower SalesGrowth* (and less *Leverage*) corresponds to more pension assets per employee and once again older firms carry more pension assets per employee, on average. *TobinsQ* has a positive correlation with pension assets per employee, suggesting that firms with *more* growth opportunities have *more* pension assets per employee. Pension assets per employee are also positively correlated with market returns, as one would expect. *More* unionized firms have *more* pension assets per employee, and relatively *less* profitable firms have *more* pension assets per employee. Employee satisfaction, as proxied by *BC*,

is positively related to pension assets per employee. I also find that firms with more pension assets per employee operate in less competitive industries. Once again our main result is the governance variable, and as be seen in column (1) *LogMedOwner* shows a strong negative correlation with pension assets per employee, meaning that *poorly* governed firms have *more* pension assets per employee, all else constant. The results are statistically insignificant across the columns when using other governance measures in columns (2) through (6) and show mixed insignificant results.

5.2.4 Growth in Pension Plan Assets

The previous tables show that poorly governed firms have, on average, more pension plan assets and fund their pension plans better. Table 10 looks at the annual growth in these pension plan assets and shows that firms with more *SalesGrowth* and less *Leverage*, on average, have *more* growth in their pension assets. Market return is positively related to the growth in pension assets, The interesting findings in this table is that firm age, governance, employee satisfaction, and union membership variables change signs: *younger* firms, *more* satisfied employees, *lower* union memberships in the industry, and *better* governed firms tend to have more growth in their pension assets.

While this may sound counterintuitive and go against the previous result this actually makes sense: since these older and poorly governed firms in highly unionized industries have larger levels of pension assets to begin with, the annual growth in assets in the better governed firms is higher due to path dependency in the data. These well governed firms operating in less unionized industries have lower pension assets to begin with as shown in Tables 8 and 9, and as such they gain more traction in terms of the growth in these pension asset accounts. Again, these results are consistent across several different governance variables used in columns (2) through (6).

5.2.5 Pension Plan Liabilities

The following three sections will look at the relationship between pension plans' projected benefit obligations. These obligations, or as I call them in my paper pension plan liabilities, take into account all current and future employee pension obligations. Table 11 shows the results of the level of pension plan liabilities and I find that *larger* firms, firms with *more* sales growth, *less* levered and *less* profitable firms tend to have relatively *more* pension liabilities than other firms, on average. In terms of growth opportunities, firms with *more* growth opportunities tend to have *more* pension liabilities. Again, as is in line with theory, the results show that *older* firms and firms in *more* unionized industries have *more* pension liabilities. Firms with higher industry gross margins also tend to have more pension plan liabilities. Our governance results also shows that *poorly* governed firms, using any governance measure in columns (1) through (6), have more pension liabilities on their books. A more detailed discussion on this result, as well as the overall picture, is discussed in later sections.

5.2.6 Pension Plan Liabilities per Employee

Table 12 shows the relationship between firm governance and DB pension plan liabilities per employee. Column (1) shows results similar to previous DB plan management variables: *SalesGrowth* and *ROA* both have a negative relationship with pension liabilities per employee respectively, holding all else constant. The results also indicate that older firms with *more* growth opportunities have *more* pension liabilities per employee. Employee satisfaction has a positive relationship with the level of pension liabilities per employee. Once again, *more* unionized firms have *more* pension liabilities per employee. *LogMedOwner* also has negative relationship with the dependent variable, suggesting that a *poorly* governed firm has *more* pension liabilities per employee holding all else constant. Just like the results on pension assets per employee in Table 9, the

governance coefficient give us insignificant results when compared across columns (2) through (6).

5.2.7 Growth in Pension Plan Liabilities

Table 13 looks at the effects of governance on the growth of pension plan liabilities. Starting at column (1), holding all else constant, similar to the previous results, firms with *more SalesGrowth* show more growth in pension liabilities. *Younger, less* unionized firms have *more* growth in pension liabilities. Employee satisfaction is strongly positively related to the growth in pension liabilities. Again, although not consistent through all the regressions in columns (1) through (6) I do find a positive relationship between *ROA* and growth in pension liabilities; *more* profitable firms do have *more* annual growth in pension liabilities. The main result in column (1) is the relationship between governance and pension liabilities, and the table shows that *better* governed firms have *more* annual growth in pension liabilities, holding all else constant.

Again, this may sound counterintuitive at first but when compared with the initial level of pension liabilities, this results makes sense just like the case with the growth in pension assets in Table 10. The growth in pension liabilities is higher in younger, less unionized, and better governed firms because of the lower levels of pension liabilities in those better governed firms in the first place, and the path dependency in the data dominates the results. Once again the results of other governance variables are not as consistent across columns (2) through (6) in Table 13.

5.2.8 Funded Status Volatility

Table 14 looks at how governance affects the volatility of the funded status, as measured by the standard deviation of the DB plan's funded status. The results in the table throughout the different specifications show that, on average, *more* levered firms, firms with *lower* growth opportunities, *older* and *more* unionized firms have *larger* funded status volatility. The table also shows that *poorly* governed firms also have *more* volatility in their funded status in nearly all the

governance measures used.

5.2.9 Low Discount Rates on Pension Liabilities

Table 15 looks at the impact of governance on the discount rate used to value future pension obligations. As described above the pension benefit obligations include all projected future salary increases and adds them onto the final pension figure. That final pension figure is then discounted back to the present and is valued accordingly. The variable *LowDisc* looks at discount rates lower than the sample median. As shown in Table 15, once again *less* levered firms, *less* profitable firms, and firms with *more* sales growth tend to have *lower* discount rates than the median. The table also shows that these lower-than-the-median discount rates are extremely sensitive to market returns. The interesting results in this table are the *PerMem* and the governance variables; *lower* percent membership in unions corresponds with *lower* discount rates, and *better* governed firms, on average, tend to have *lower* discount rates than the median. The governance results though out columns (2) through (6) mostly corroborate this result. The sections following the results will discuss the implications of these actions in more detail.

5.2.10 Higher Rates of Return on Pension Assets

As discussed above, managers have significant discretion in setting their rate of return on the pension assets. Table 16 looks at how governance affects setting a certain rate of return higher than the sample median, *ExcessROR*. Looking at the table, I find that there is a negative relationship between *ExcessROR* and market return. This result indicates some sort of managerial manipulation to smooth their reported earnings on their pension assets in market downturns. We also see firms with higher leverage tend to have higher than the median *ExcessROR*. More membership in unions in a firm's industry corresponds to higher rates of return on pension assets. The results also show that the firms operating in less competitive industries tend to have pension

asset rates of returns higher than the median. The results in column (1) also show that, on average, *poorly* governed firms assume higher rates of return on their pension assets. This result, once again, indicates further that managerial manipulation is rife when setting assumed long-term rates of returns on their pension assets, especially in poorly governed firms. The other governance variables in columns (2) through (6) do show some indication of the same result.

5.2.11 “Well Funded” Plans

The results above give us a well rounded idea on how these pension plans are managed by different managers. It is also interesting to look at a subsection of the data and see how, and by whom, the better funded plans are managed. I use a *WellFunded* dummy variable to distinguish between the plans, and these better funded plans ($WellFunded = 1$) are assumed to be those that are funded above the median level of fundedness. Table 3 shows the median funded status the sample is 84%, and as such any plan that is funded above 84% will be assigned a *WellFunded* status.³⁶

Table 17 looks at the likelihood of sponsoring a *WellFunded* plan, and shows that older, larger firms, firms with lower sales growth and higher employee productivity in the industry, and firms with larger union membership on average tend to have a higher likelihood of sponsoring a *WellFunded* plan. Firms with higher marginal tax rates are more likely to fund their pension plan better than the median. Once again I find that firms on Fortune Magazine’s “100 Best Companies To Work For in America” list are less likely to have a *WellFunded* plan, and also find that firms in less competitive industries have a higher likelihood of having a *WellFunded* plan. In terms of governance, across all the different governance specifications I find that poorly governed firms on average do, in fact, have an increased likelihood of funding their plans more than the median funded status.

³⁶I also looked at median funded levels per industry and found it was not different to the overall median funded status

I next look at how governance affects these well funded plans in a Heckman 2-Stage regression with the *WellFunded* dummy as the dependent variable and the original pension choice regression in the 1st stage. Table 18 shows the results and they are consistent with previous results: older firms, larger firms, with lower leverage and higher union membership operating in less competitive industries tend to fund their plans better than the median. In terms of governance, once again I find that poorly governed firms tend to fund their plans better than the median and the result is consistent across several different governance specifications.

5.2.12 Marginal Tax Rates³⁷

In this section I look at whether marginal tax rates affect a firm's corporate pension policy. Table 19 looks at the 1st stage Heckman probit regression, and the same initial results are there showing that older firms, larger firms, firms with higher levels of leverage and lower growth opportunities, firms with higher employee productivity and firms in more unionized industries are more likely to sponsor DB plans. Firms on Fortune Magazine's "100 Best Companies To Work For in America" list are less likely to sponsor DB plans, and firms in less competitive industries are more likely to sponsor such plans. Governance results once again hold throughout all different governance measures and show that poorly governed firms are more likely to sponsor DB plans. In terms of tax rates, the table shows that firms with higher marginal tax rates are more likely to sponsor DB plans, in line with theory relating tax benefits with pension plans. Once again, this result holds across all the different specifications in columns (1) through (6).

Table 20 shows the results of the 2nd stage Heckman for corporate pension policy including *MTR* as an independent variable, using only my main governance measure, *LogMedOwner* to control for governance. All results documented above still hold in terms of firm size, sales growth,

³⁷I repeat the regressions above and include *MTR* as an independent variable. The regressions were repeated since the marginal tax rate data decreases the data by more than 2500 firm-year observations. As such, I did not want the results above to be judged solely on lower observations due to lack of tax rate data for all firms in all years

firm age, leverage, degree of unionization, industry concentration and governance with respect to corporate policies on pensions. Table 20 shows that firms that have *higher* marginal tax rates fund their plans *better* than others, on average. Firms with *higher* marginal tax rates also show *more* growth in their pension liabilities, *higher* levels of pension assets on their books, as well as *higher* pension assets per employee.

5.3 Discussion of Results

Putting all the previous results together gives us a relatively clearer picture as to how these DB plans are managed. The previous results show that entrenched managers are not only more active in managing their employees pension plans, but also manage it in a way that keeps their employees happy. The tables show that while entrenched managers may be more generous and hold more pension liabilities on their books, they hold enough pension assets to cover them, hence giving them better funded status. As per the pension laws stated above, a manager does not necessarily *need* to fund the DB plans fully and can use the cash generated for other areas in the firm. So why do entrenched managers keep their DB plans funded more than other managers? Tables 6-20 also show that this better management in DB plans occurs in industries where more employees are union members. Union conflicts with managers is a widely documented issue, especially regarding corporate pension policy, and the evidence here suggests that entrenched managers bypass these conflicts by funding their DB plans better than other managers; in other words, managers are looking for the quiet life when dealing with conflict-inclined unions.

The results associated with employee satisfaction show some mixed results. We do observe a positive correlation in the data between governance and employee satisfaction, and as such we expect to see similar patterns arising in terms of the corporate pension policy results. We do see that these *BC* firms are less likely to sponsor DB plans in the first place, and upon sponsoring such a plan we do see a negative correlation between employee satisfaction and the aggregate levels of pension assets and liabilities. However, we also see a strong positive correlation between employee

satisfaction and pension assets and liabilities on a per employee basis. This result shows that in the less likely event that these *BC* do sponsor DB plans, they would carry more assets and liabilities per employee to keep employees satisfied.

In terms of tax benefits, I document the use of DB plans for firms with higher marginal tax rates. In terms corporate pension policy for firms with higher marginal tax rates, I find that not only do these firms have a higher likelihood of sponsoring DB plans, but they also fund their DB plans better. These firms, conditional on sponsoring a DB plan, also tend to have higher pension assets per employee. This follows theory around tax benefits and pension plans, and suggests that firms are taking advantage of the tax rules associated with pension contributions tax deductibility.

Looking at other factors in the previous tables also explains other interesting issues. While the tables show that poorly governed firms have more pension assets and liabilities than better governed firms, the setting of interest rates associated with both accounts seems to be a factor. Poorly governed firms tend to assume higher-than-the-median rates of return on their assets. They also assume higher-than-the-median discount rates on their future obligations. The negative relationship between funded status volatility and corporate governance also implies managerial opportunism in managing these plans. The data also shows that managers in less competitive industries tend to fund their plans better than others. Putting those results together indicates that poorly governed firms may be managing their pension funds in a way to keep their employees happy, but not necessarily in the correct way. The tables show that these above/below the median rates of return and discount rates occur in more unionized industries, all the more support to the notion of managers pleasing employees and avoiding tensions with unions. The data shows that these poorly governed firms are underestimating their future obligations (by discounting them more heavily than other firms) and also overestimating the returns on their pension assets, relative to the other firms (by having a rate of return higher than other firms.) The regressions were also conducted on above (below) industry medians of ROR (discount rate), and the results were nearly identical.

This result also implies that managers with more control tend to pay, at least in future terms, their employees better as per Cronqvist et al (2009). As per Jensen and Meckling (1976) several

types of benefits to CEOs arise by paying their employees more, such as better relationships with employees and/or more loyalty towards the CEO. The evidence in Tables 6-20 clearly shows that entrenched managers are promising to pay their employees better, even if they are future promises and not actual money changing hands today. Employees, whether union members or not, recognize that their future payments are being funded better and as such there won't be conflicts between management and employees about pension pay - no conflicts means better relationships between the two.

Overall, the results imply that DB plan assets, liabilities, and overall fundedness are negatively related to firm governance. This is in line with Jensen and Meckling (1976) agency model for managers' utility generated by non-pecuniary activities, and the results do support Bertrand and Mullainathan's (2003) quiet life argument.

5.4 CEO Characteristics and Compensation

The previous section showed that entrenched CEOs promise to pay their employees better than other CEOs, and as such this section will look at what makes these CEOs different. One would expect that CEOs looking for the quiet life would have a compensation package that is mostly guaranteed pay and not largely incentive based if they have enough control to set their own compensation. Bertrand and Mullainathan (2003) show in their paper that CEOs do not undergo any value decreasing acquisitions by acquiring new plants, nor do they take down any existing plants; this shows CEOs are satisfied with the status quo. One would also be interested in looking at the size of the total compensation package. Total compensation could go either way; one would assume that CEOs looking for the quiet life would do so in all aspects of their job and not necessarily start conflicts with the board over larger compensation packages. Another interesting avenue to explore would be to see if "managers who place a great value on control and own only a small equity stake have an incentive to pay high wages" as per Pagano and Volpin (2005). It is interesting to see if that also extends to promises of future payments as well.

The selection regressions (1) and (2) were conducted again but this time the vector X_i in both equations included an extra variable (or variables) that examines CEO characteristics.

5.4.1 Defined Benefits Plans and CEO Characteristics

Table 21 shows the results of the first stage Heckman with CEO characteristics included and using only my main governance measure, *LogMedOwner*, to control for governance. The results from the previous Heckman in Table 6 are the same in terms of lower governance, lower industry competition, and other factors that affect defined benefit plan selection, but now we see in columns (1) through (8) that higher CEO salary corresponds to increased likelihood of having a DB plan. I also find that less percent salary of total compensation, lower value of CEO shares owned and more total compensation all increasing the likelihood of sponsoring a DB plan. What is interesting is the CEO's percent ownership in the firm, and column (5) clearly shows that the lower the ownership stake of the CEO in the firm, the higher the probability of sponsoring a DB plan. This gives us an indication of what Pagano and Volpin (2005) show in their paper exists for future promises as well. Column 7 shows that more percent of total pay earned as bonuses to the CEO corresponds positively with sponsoring a DB plan.

Column (8) puts the three CEO compensation factors together - percent salary, percent ownership in the firm, and percent bonus - and the results still hold, as well as the governance result that holds throughout the 8 specifications in Table 21.

5.4.2 CEOs and Funded Status

Table 22 looks at whether CEO characteristics and compensation structure affect the funded status of a DB plan. Starting with the governance variable, I find that it is significant and holds in nearly all of the specifications in the table (it is not significant in one of the specifications most probably because of lack of enough observations. It is no coincidence that these specifications in

columns (2) and (5) are related to ownership, and it might be a case of collinearity).

Starting with column (1), we see that lower CEO salary corresponds to higher fundedness of a firm's DB plan. I find a similar result in column (3) for total compensation, and find that it is negatively related to funded status. In terms of percent guaranteed compensation, Table 22 shows that higher guaranteed compensation (in terms of salary) corresponds to a better funded DB plan. The table also shows lower bonuses paid to the CEO corresponds to higher funded status.

5.5 Discussion of Results - CEO Characteristics

The previous section clearly shows a relationship exists between CEO compensation and DB plan management, but it does not set any compensation schemes for firms that concentrate their efforts on DB plans as this is not the goal of this section, nor does it recommend any overarching compensation hypotheses to minimize the effects they have on pension plan management. Tables 21 and 22 do, however, show the existence of a trend between DB plan corporate policy and CEO pay that follows in the quiet life theme; entrenched managers that fund their DB plans better have a higher percentage of guaranteed pay (salary) in their compensation package, which follows the premise of this paper relating entrenchment/lower governance with better fundedness; these CEOs also operate in less competitive industries, and also have a relatively lower total compensation package. The tables also show that the governance measure holds throughout the different specifications. The lower total compensation may be because these quiet-life-seeking CEOs do not want to engage in battle with the board over their pay that would ultimately sour the relationships between them (example of Jensen and Meckling's (1976) non-pecuniary benefits), as long as their guaranteed pay is relatively larger than others.

These firms also operate in less competitive industries and the firms are poorly governed, a combination that gives the manager substantial slack in how a firm operates with regards to different stakeholders as a result of this lower competitiveness and lower monitoring surrounding a manager's activities. These results, coupled with the fact that these entrenched CEOs have a larger portion of their compensation package that is guaranteed, clearly show that these managers

do not need nor have enough incentive (and probably do not have the desire) to build new plants and expand more since their compensation structure is not as sensitive towards better performance measures as others, which further strengthens Bertrand and Mullainathan's (2003) quiet life result within this paper's scope.

The evidence on CEO characteristics may not necessarily show direct causality, but it certainly does show the existence of such a relationship between entrenched CEOs and DB plan management, and needs to be studied in further extensions of this field.

Chapter 6

Conclusion

Using a large panel data set on defined benefit pension plans of U.S. companies and respective corporate governance measures, I document the effect of governance on the management of these DB plans. I find that poorly governed firms tend to manage their DB plans better; the pension liabilities increase but so do the pension assets, leading to a more funded DB plan. Pension assets and liabilities on an employee basis are also larger in these poorly governed firms. Poorly governed firms are also more likely to sponsor plans funded better than the median plan, and on average these firms assume higher rates of returns on their pension assets, as well as having higher discount rates on their future pension obligations. This can be viewed as evidence of an agency problem of entrenched managers promising more wages to employees and taking advantage of non-pecuniary benefits such as employee loyalty and better relations with staff. The data also shows signs of problems surrounding separation of ownership and control because of CEO cash flow rights and ownership being negatively correlated to employee compensation, and statistically significant.

This better management of DB plans in poorly governed firms is persistent even when controlling for union-intense industries. This signals a manager's reluctance in engaging in conflicts with unions. These firms also tend to operate in more concentrated industries than other firms - a sign of managers wanting to live "the quiet life". Further evidence of the quiet life can be seen in the CEO compensation package - CEOs that manage their employees' DB plans better have a larger guaranteed portion (salary) as part of their compensation package, a probable sign of CEOs lack of desire to be aggressively increasing firms growth prospects and happy with the status quo. These

findings are consistent with managers preferring the quiet life and CEOs enjoying non-pecuniary benefits from lower effort in future wage bargaining, as well as better social relationships with employees.

The evidence presented in this paper adds to the existing literature relating agency problems to managerial private benefits. Entrenched managers have large discretion over the off-balance-sheet items that provide attractive benefits to them, such as loyalty and better relations, as previously documented by Cronqvist et al (2009) and theorized by Jensen and Meckling (1976). It also adds to Bertrand and Mullainathan's (2003) quiet life claim, and shows that entrenched managers do prefer to fly under the radar and in order to enjoy the quiet life.

Further extensions of this field should look at how CEOs manage specific DB plans based on employee proximity, both geographical and hierarchal. It would also be beneficial to study why exactly do CEOs of better governed firms not manage their pension plans as well as CEOs of poorly governed firms. Another potential area of research down the line would be to study the effects of the Pension Protection Act of 2006 and see whether the new funding rules that went into effect in 2008 changed how the pension system operates as whole.

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Appendix A

Variable Definitions

Governance Variables

LogMedOwner: As described in Bhagat and Bolton (2008), this variable is the log of the dollar value of a firm's median director's ownership

G – Index: As described in Gompers, Ishii and Metrick (2003) this variable ranges from 0-24, with a higher score indicating weaker shareholder rights

E – Index: As described in Bebchuk, Cohen, and Ferrell (2004) this variable is a subset of the *G – Index* and ranges from 0-6, with a higher score indicating weaker shareholder rights

PercentIndep: Percent independent directors on a firm's board

SumOut: Percent of firm equity held by outside blockholders

CEO – ChairDuality: Dummy variable set at 1 if CEO is also the Chairman of the board, and 0 otherwise

CEO Compensation Variables

CEOAge: CEO Age

LogCEOSal: Log of the CEO's salary

LogTDC1: Log of CEOs total compensation including salary, bonus, options and stock grants

LogCEOShares: Log of the market value of shares held by the CEO

LogShares: Log of the number of shares held by CEO, excluding options

%Salary: Percent of total CEO compensation that is salary

Pension Plan Management Variables

Pen: Dummy variable indicating whether a firm sponsors a defined benefit pension plan or not

PenAssets: Defined benefit pension assets

PenLiabs: Defined benefit pension liabilities. This is the Pension Benefits Obligations entry and is a measure of all accumulated and discounted future obligations to employees

ΔLogPen : Annual growth of firm's pension assets

$\Delta \text{LogPenLiab}$: Annual growth of firm's pension liabilities including future obligations

FundedStatus: This variable shows whether or not a firm has enough pension assets to cover all its pension liabilities. It is calculated as $\text{PenAssets}/\text{PenLiabs}$, and accordingly a value greater than 1 indicates that the firm does have enough pension assets to cover all its pension benefit obligations, and a value less than 1 indicates otherwise

FundedStatusVolatility: This variable measures the volatility of a firm's funded status

LogPlPerEmp: Log of Pension Liabilities per Employee

LogPaPerEmp: Log of Pension Assets per Employee

WellFunded: Firms with funded status better than the sample median

LowDisc: Firms with pension discount rates (used to discount future obligations) lower than the sample median

ExcessROR: Firms with rates of return on pension assets greater than the sample median

LogIndMedPen: Log of the 2 digit SIC industry median pension assets

LogIndMeanPen: Log of the 2 digit SIC industry mean pension assets

MeanDBSIC2yr: Mean number of firms in 2 digit SIC industry with DB plans

Financial Variables

LogSale: Log of firm's total sales

SalesGrowth: Annual sales growth of firm

Leverage: Log of firm's long term debt scaled by firm assets

TobinsQ: Tobin's Q, or Market-to-Book value, measuring firms growth opportunities

ROA: Return on Assets

MarketReturn: Value Weighted yearly market return on the S&P500

LogFirmAge: Log of firm's age

IndPM: Industry profit margin, set as the mean profit margin ($NetIncome/TotalRevenue$) within 2 Digit SIC industries

IndGM: Industry gross margin, set as the mean gross margin ($(Sales - COGS)/Sales$) within 2 Digit SIC industries

Productivity Variables

LogOutput: Log of total industry output

LogProdPerEmp: Log of industry output scaled by number of employees

LogProdPerHour: Log of industry output scaled by total hours of labor input

LogLaborShare: Log of industry output scaled by employee compensation

Unionization, Employee Satisfaction and MTR Variables

Permemp: Percentage of employees that are members of a labor union

Percov: Percentage of employees covered under a labor union

Tenure: Average employee tenure per industry

BC: Dummy variable showing whether a firm is included in the Best Companies List in that year.

MTR: Simulated marginal tax rates after deductions for depreciation, interest, and leasing expenses

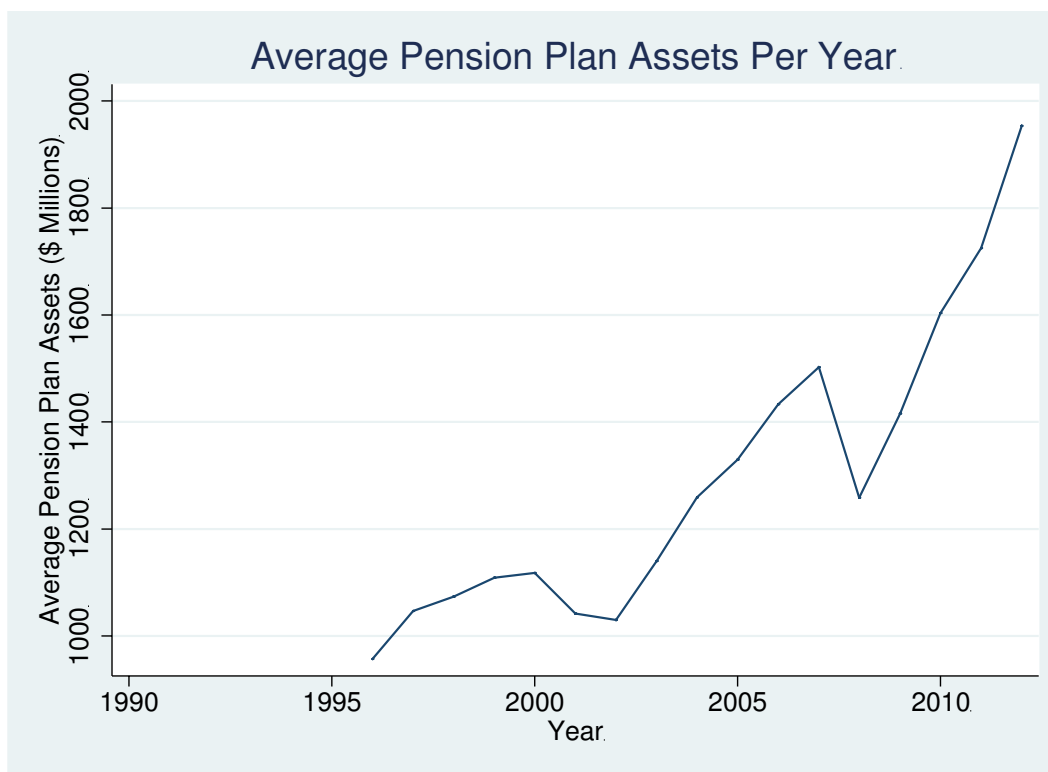


Figure 1 – Average Pension Plan Assets

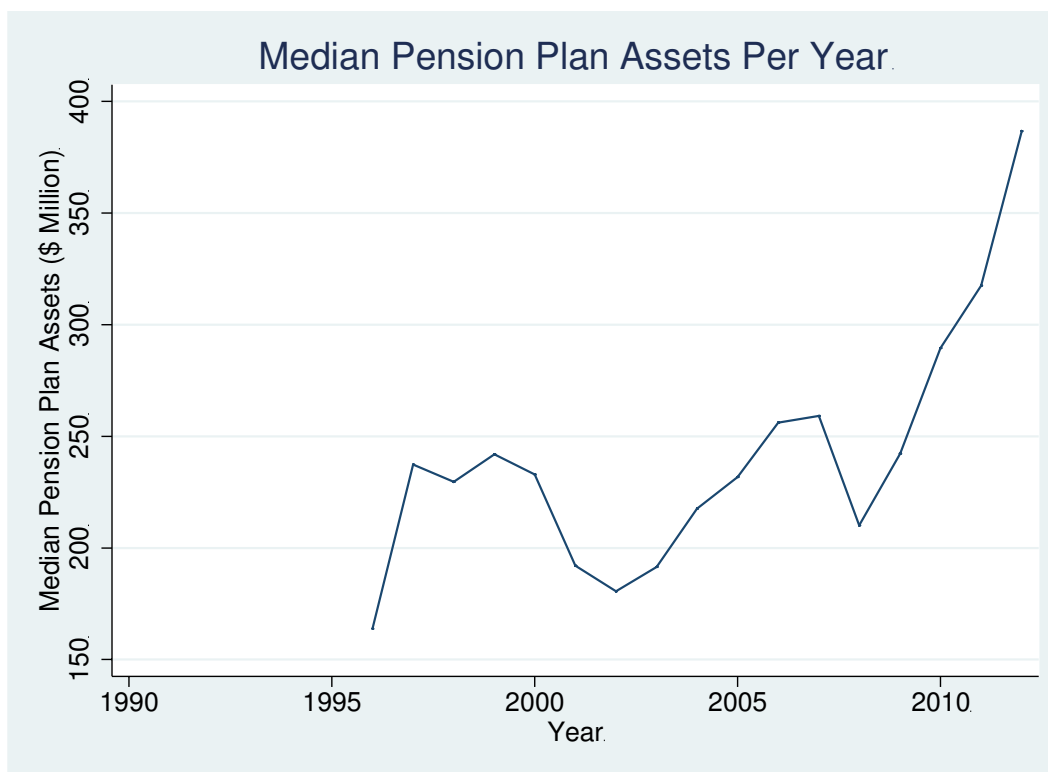


Figure 2 - Median Pension Plan Assets

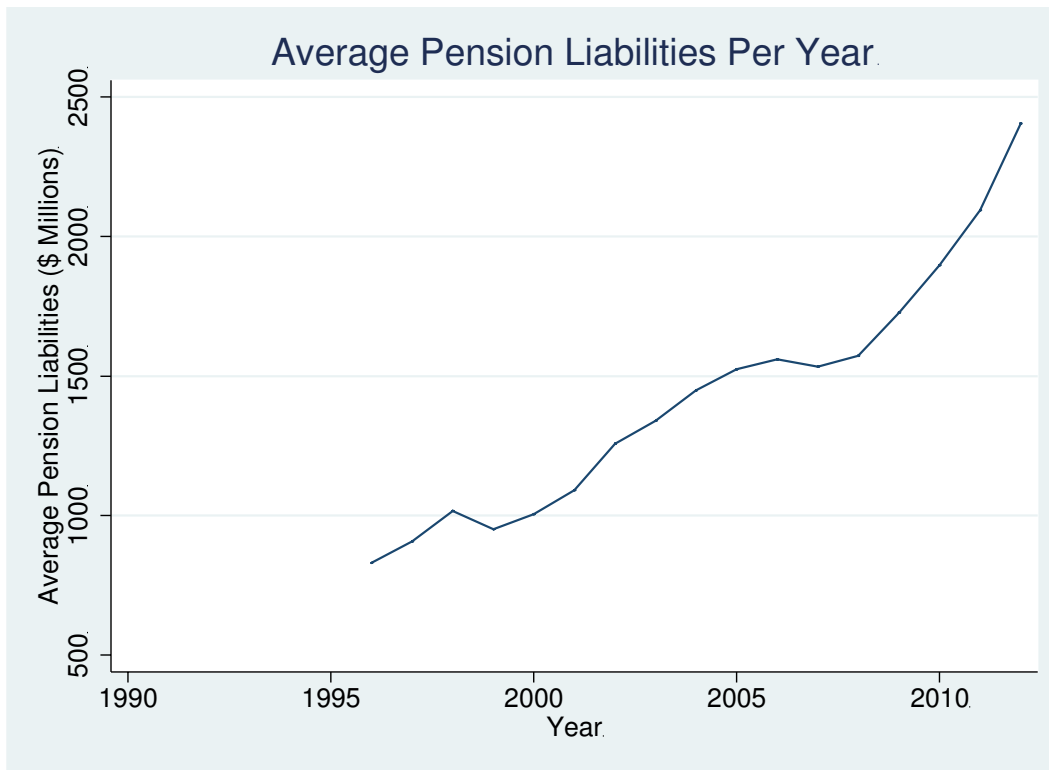


Figure 3 - Average Pension Plan Liabilities

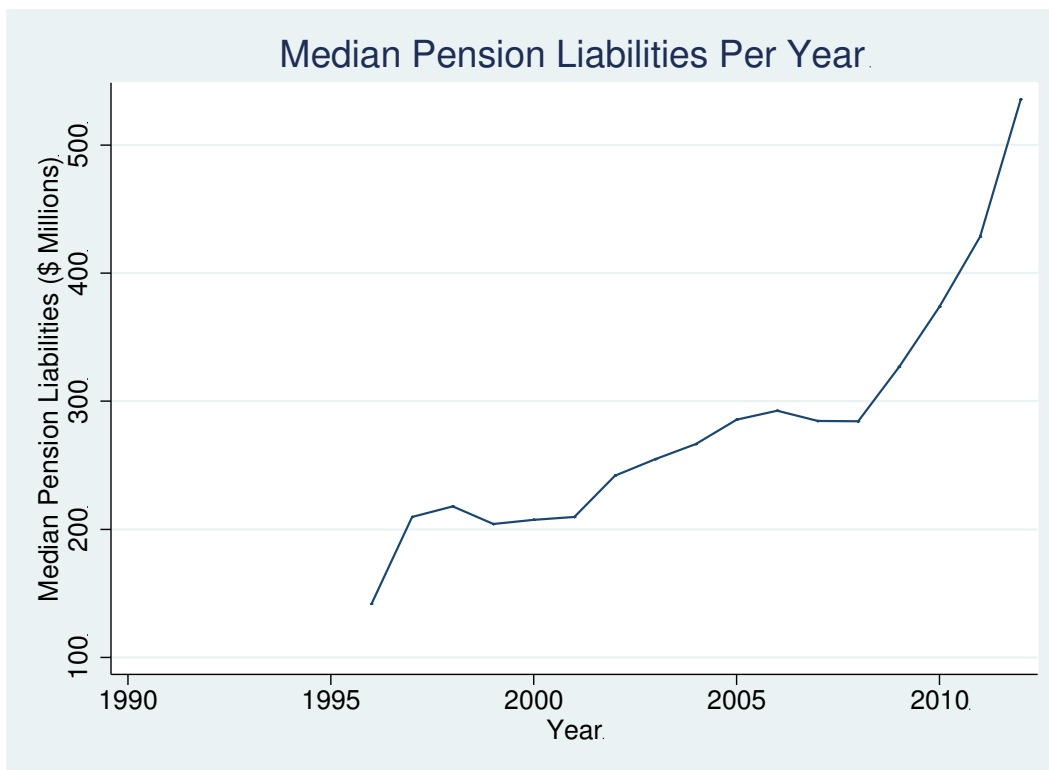


Figure 4 - Median Pension Plan Liabilities

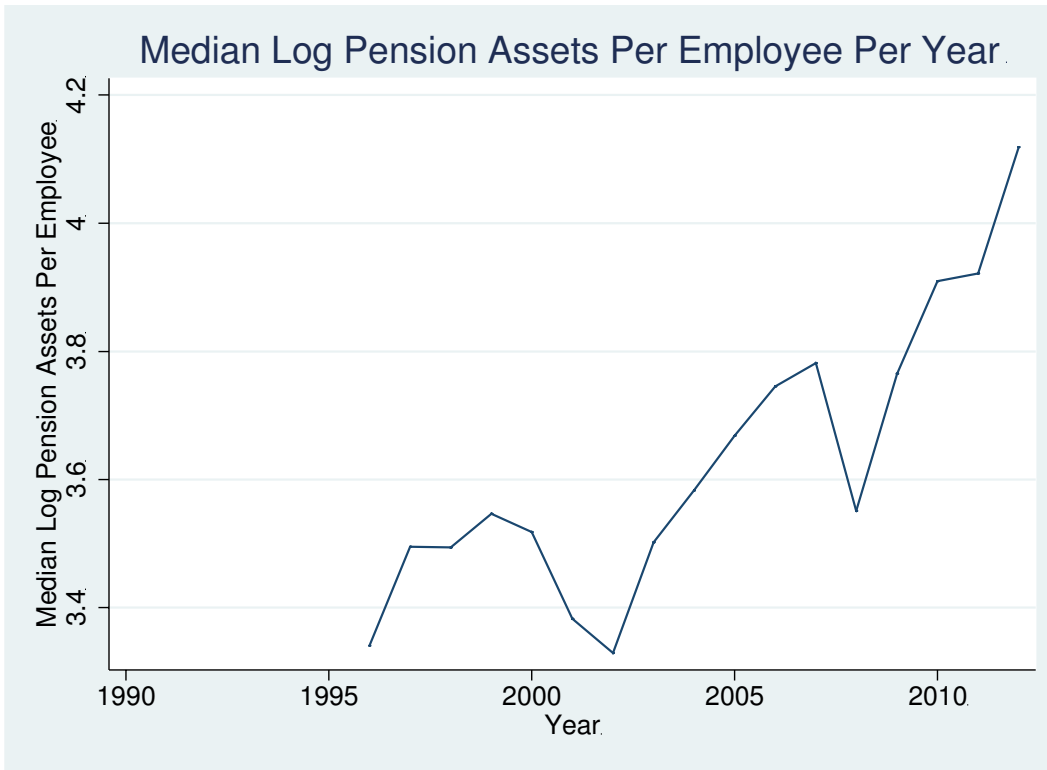


Figure 5 - Median Pension Plan Assets Per Employee

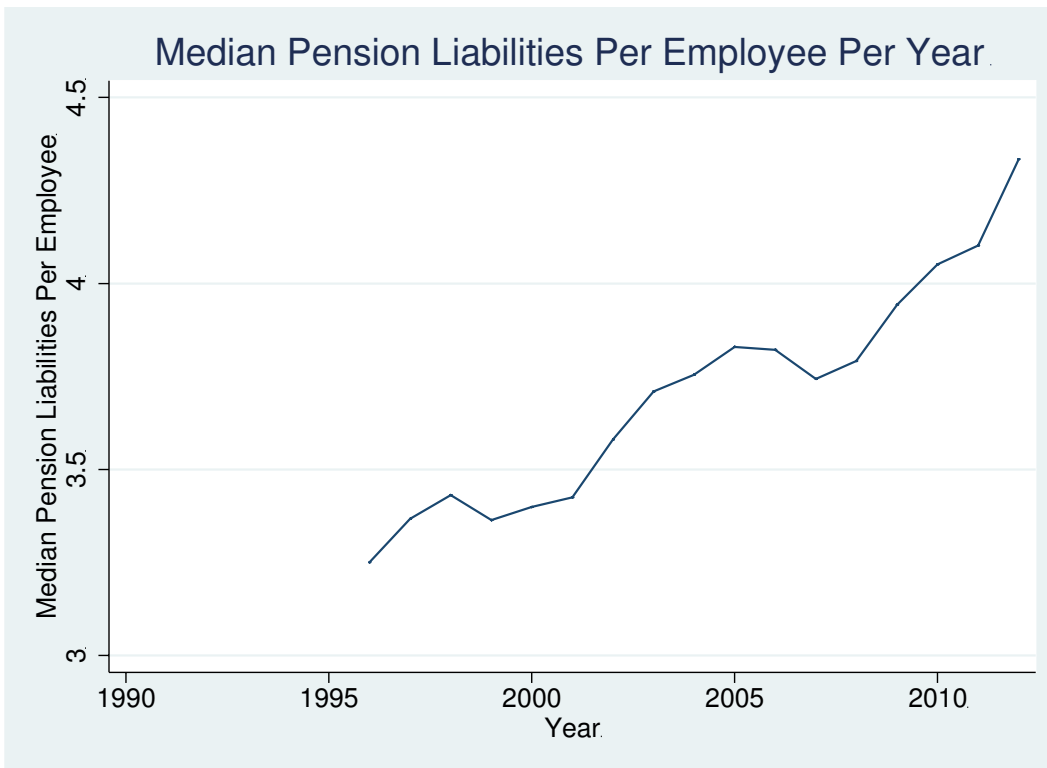


Figure 6 - Median Pension Plan Liabilities Per Year

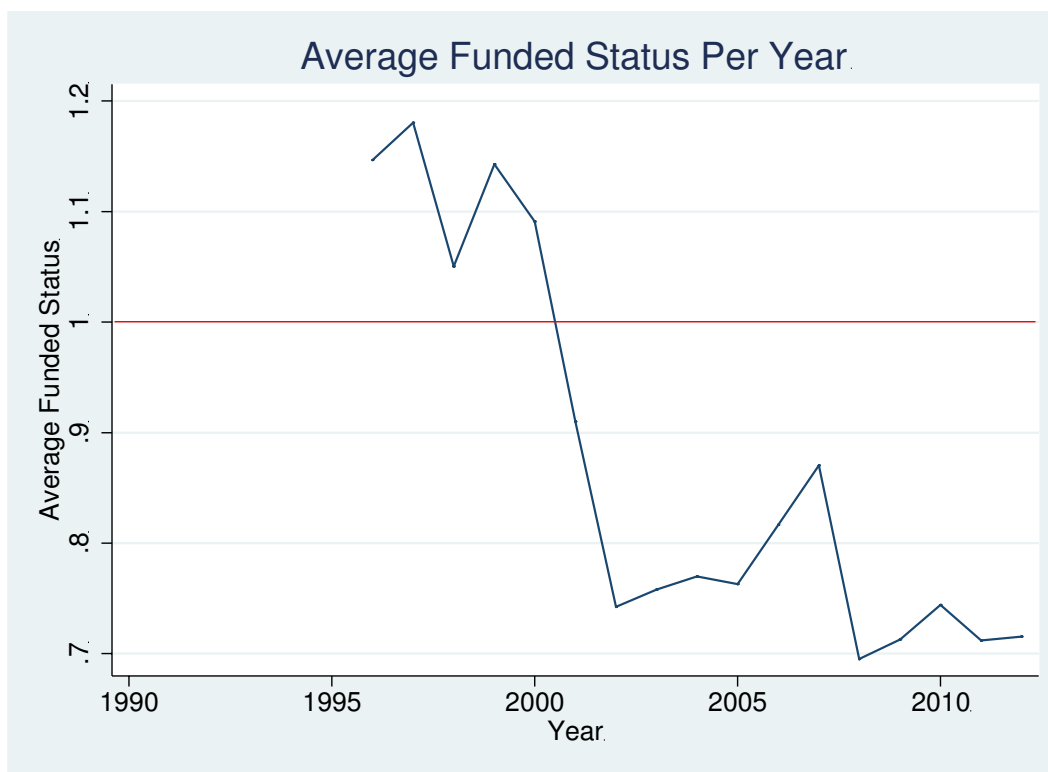


Figure 7 - Average Funded Status

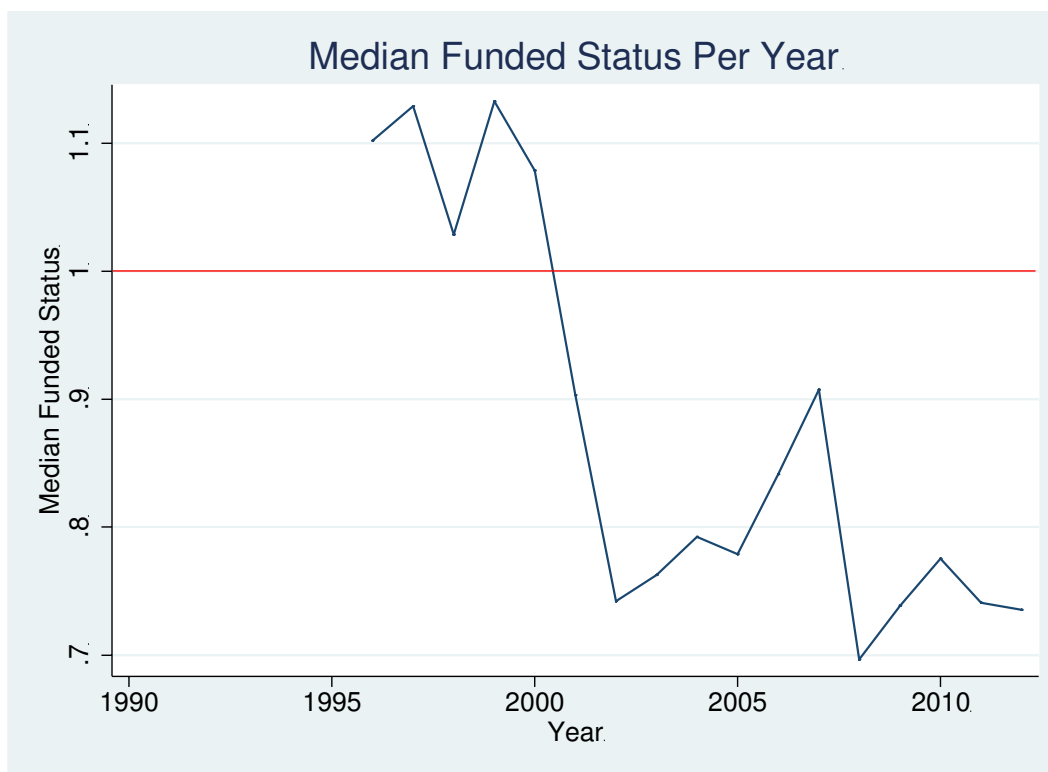


Figure 8 - Median Funded Status

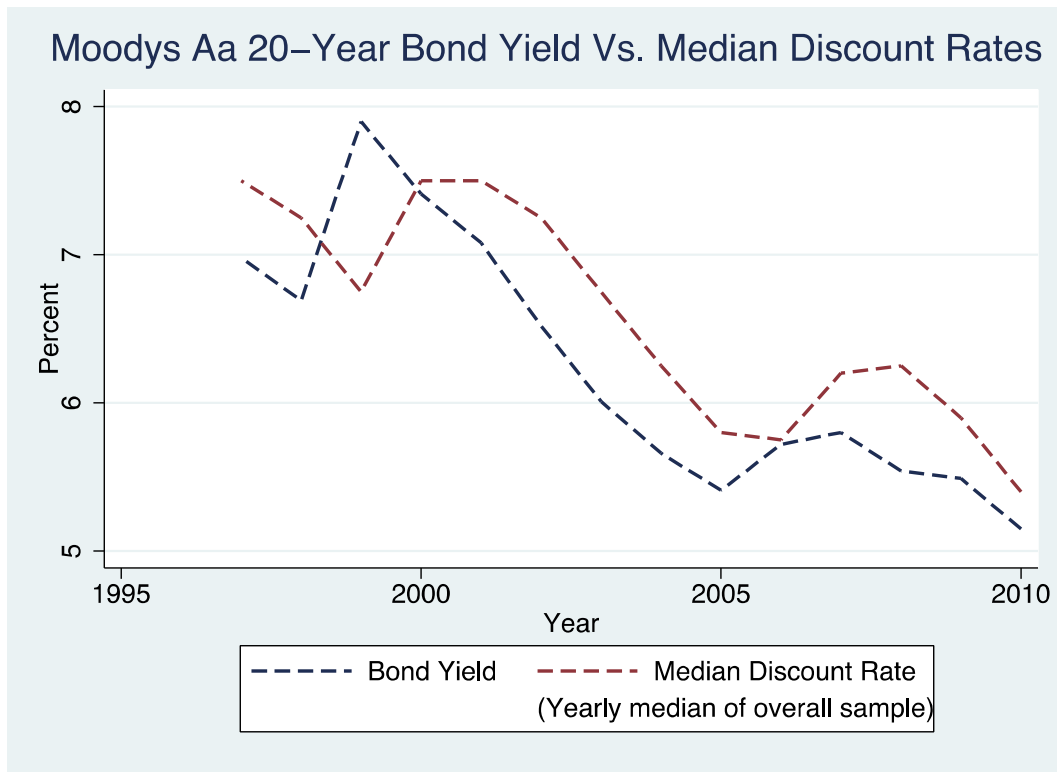


Figure 9 - Discount Rates Vs. Bond Yields

Table 1 – Advantages and disadvantages of sponsoring DB plans

Sponsoring DB Plan	Employees	Managers	Shareholders
<p>Advantages</p>	<ul style="list-style-type: none"> • Employees would have the peace of mind regarding life after retirement is secure not only from future promises of their retirement benefits, but they also can take comfort from that fact that they bear <u>no investment risk</u> regarding their pension assets. Pension contributions are made by the firm, and pension asset returns are the results of the managerial pension asset allocation. 	<ul style="list-style-type: none"> • Managers who fund their plans better would enjoy non-pecuniary benefits such as loyalty, better social relations, and respect from employees. • Managers who fund their plans better would also avoid hassle of dealing with conflict-inclined unions if they keep their employees relatively happy. 	<ul style="list-style-type: none"> • Akerlof and Yellen (1986) and Lazear (1986): “<i>Efficiency Wage</i>” argument: <ul style="list-style-type: none"> ○ Less shirking → Lower employee turnover → Less training costs → More Profits ○ Less shirking → More productivity → Less labor cost → More Profits • Employee satisfaction is linked to better firm performance, which in turn is linked to better profits for shareholders.
<p>Disadvantages</p>	<ul style="list-style-type: none"> • Employees are less likely to switch firms since their future pay is tied to this one firm. Employees are essentially “locked in” to their job. • Employees know that job termination would essentially see them lose a large portion of their future payments. 	<ul style="list-style-type: none"> • Decreasing shareholder claims on cash flows may lead managers into conflicts with shareholders. • Decreasing bottom line would probably decrease manager’s own pay, depending on managerial pay structure. • All pension investment risk is borne by the firm. 	<ul style="list-style-type: none"> • More pension contributions made by firms means less money left over for shareholders. As such, shareholders would not want a plan funded mostly by pension contributions. • As prior research has shown, shareholders would prefer pension funds to hold riskier assets in order to maximize returns and minimize firm contributions to the fund.

Table 2 – Summary statistics of all firms

Variable	Obs	Mean	Median	St Dev
<i>Panel A: Pensions</i>				
Pension Assets (\$ Millions)	12730	1266.08	214.44	3206.27
Pension Benefits Obligations (\$ Millions)	12832	1394.61	243.81	3537.97
Funded Status	12489	0.85	0.84	0.31
% Equity	6814	57.61	61.00	17.16
% Debt	6766	34.32	32.90	15.26
% Real Estate	6628	1.38	0.00	2.80
% Other	6835	6.36	1.00	12.27
Discount Rate	11950	6.10	6.05	1.20
Rate of Return	11429	8.17	8.50	1.42
<i>Panel B: Firm Characteristics</i>				
ROA	22699	0.12	0.12	0.16
Tobin's Q	22995	1.83	1.43	1.18
Total Assets (\$ Millions)	23234	10186.19	1823.85	30080.89
Total Liabilities (\$ Millions)	23177	7801.52	992.68	26491.10
Firm Age (Years)	23305	26.90	22.00	16.54
Employees (Thousands)	22835	16.16	5.39	26.95
Log Sales	23205	7.25	7.16	1.56
Sales Growth	20459	0.02	0.04	0.21
Industry GM	23276	0.26	0.34	0.36
Market Return	23382	0.08	0.13	0.19
% Members in Unions	10177	0.13	0.09	0.11
% Covered by Unions	10177	0.14	0.10	0.11
Leverage	23168	0.20	0.17	0.19
MTR	17196	0.21	0.32	0.16
Best Companies	23303	0.03	0.00	0.16
<i>Panel C: Governance Indices</i>				
Log Median Director Ownership	12378	13.73	13.74	1.43
G-Index	20184	9.07	9.00	2.62
E-Index	20184	2.19	2.00	1.29
% Independent Directors	13092	0.67	0.70	0.18
% Held by Outside Blockholders	3309	15.89	12.80	14.93
CEO/Chair Duality	13092	0.60	1.00	0.49

Table 3 – Summary statistics of firms that sponsor a DB plan

Variable	Obs	Mean	Median	St Dev
<i>Panel A: Pensions</i>				
Pension Assets (\$ Millions)	12489	1290.49	226.01	3232.20
Pension Benefits Obligations (\$ Millions)	12600	1420.29	253.02	3565.28
Funded Status (PBO)	12489	0.85	0.84	0.31
% Equity	6782	57.85	61.00	16.80
% Debt	6734	34.44	33.00	15.12
% Real Estate	6596	1.38	0.00	2.80
% Other	6813	6.37	1.00	12.26
Discount Rate	11720	6.14	6.05	1.05
Rate of Return	11233	8.25	8.50	1.17
<i>Panel B: Firm Characteristics</i>				
ROA	12491	0.12	0.12	0.08
Tobin's Q	12484	1.61	1.33	0.87
Total Assets (\$ Millions)	12598	15868.30	3401.06	38680.39
Total Liabilities (\$ Millions)	12587	12498.74	2162.59	34304.70
Firm Age (Years)	12598	34.30	37.00	16.94
Employees (Thousands)	12431	21.26	8.40	30.14
Log Sales	12594	7.82	7.72	1.42
Sales Growth	11404	0.01	0.03	0.20
Industry GM	12600	0.31	0.33	0.26
Market Return	12600	0.08	0.13	0.20
% Members in Unions	7786	0.14	0.09	0.11
% Covered by Unions	7786	0.15	0.10	0.12
Leverage	12585	0.22	0.20	0.16
MTR	9265	0.22	0.33	0.15
Best Companies	12592	0.02	0.00	0.14
<i>Panel C: Governance Indices</i>				
Log Median Director Ownership	6795	13.46	13.50	1.34
G-Index	11077	9.72	10.00	2.61
E-Index	11077	2.39	2.00	1.28
% Independent Directors	6956	0.71	0.75	0.16
% Held by Outside Blockholders	2334	14.84	11.20	14.90
CEO/Chair Duality	6956	0.65	1.00	0.48

Table 4 – Summary Statistics of firms that do not sponsor a DB plan

Variable	Obs	Mean	Median	St Dev
<i>Panel A: Pensions</i>				
Pension Assets (\$ Millions)	241	0.90	0.00	4.41
Pension Benefits Obligations (\$ Millions)	232	0.00	0.00	0.00
Funded Status	N/A			
% Equity	32	6.38	0.00	17.21
% Debt	32	8.67	0.00	22.28
% Real Estate	32	0.16	0.00	0.88
% Other	22	3.91	0.00	16.44
Discount Rate	230	3.67	4.90	3.54
Rate of Return	196	3.66	0.00	4.29
<i>Panel B: Firm Characteristics</i>				
ROA	10208	0.11	0.12	0.22
Tobin's Q	10511	2.09	1.60	1.42
Total Assets (\$ Millions)	10636	3455.92	885.55	10999.87
Total Liabilities (\$ Millions)	10590	2218.53	391.51	8934.35
Firm Age (Years)	10707	18.19	15.00	10.84
Employees (Thousands)	10404	10.07	2.90	20.98
Log Sales	10611	6.57	6.52	1.44
Sales Growth	9055	0.02	0.05	0.23
Industry GM	10676	0.21	0.35	0.44
Market Return	10782	0.08	0.13	0.19
% Members in Unions	2391	0.09	0.07	0.09
% Covered by Unions	2391	0.10	0.07	0.09
Leverage	10583	0.17	0.11	0.21
MTR	7931	0.20	0.29	0.16
Best Companies	10711	0.03	0.00	0.18
<i>Panel C: Governance Indices</i>				
Log Median Director Ownership	5583	14.06	14.07	1.46
G-Index	9107	8.27	8.00	2.41
E-Index	9107	1.94	2.00	1.25
% Independent Directors	6136	0.63	0.67	0.19
% Held by Outside Blockholders	975	18.43	16.83	14.72
CEO/Chair Duality	6136	0.53	1.00	0.50

Table 5 – Governance indices correlation matrix

	Log Median Ownership	G-Index	E-Index	% Independent Directors	% Held Outside Blockholders	CEO/Chair Duality
Log Median Ownership	1					
G-Index	-0.0831*	1				
E-Index	-0.0944*	0.7215*	1			
% Independent Director	-0.2132*	0.2375*	0.2478*	1		
% Held Outside Blockholders	-0.1338*	-0.1628*	-0.0854*	-0.0993*	1	
CEO/Chair Duality	-0.0501*	0.1079*	0.0735*	0.0691*	-0.05	1

* p<0.01

Table 6 – 1st Stage Heckman: Results of the pension choice regression

VARIABLES	(1) Pen	(2) Pen	(3) Pen	(4) Pen	(5) Pen	(6) Pen
Log Sales	0.263*** (0.0193)	0.311*** (0.0159)	0.323*** (0.0160)	0.244*** (0.0185)	0.259*** (0.0252)	0.245*** (0.0186)
Sales Growth	-0.0696 (0.121)	0.0206 (0.0955)	0.0161 (0.0957)	-0.0996 (0.118)	0.146 (0.152)	-0.117 (0.118)
Market Return	-0.0470 (0.121)	-0.0949 (0.107)	-0.0984 (0.107)	-0.0627 (0.119)	-0.917*** (0.190)	-0.0646 (0.119)
Leverage	0.571*** (0.149)	0.232** (0.111)	0.234** (0.112)	0.702*** (0.141)	0.273 (0.190)	0.619*** (0.144)
Tobin's Q	-0.108*** (0.0236)	-0.114*** (0.0184)	-0.112*** (0.0186)	-0.129*** (0.0222)	-0.203*** (0.0306)	-0.125*** (0.0226)
Employee Productivity	0.228*** (0.0319)	0.144*** (0.0278)	0.133*** (0.0278)	0.196*** (0.0321)	0.272*** (0.0494)	0.221*** (0.0317)
Unionization	1.184*** (0.312)	1.474*** (0.270)	1.489*** (0.271)	1.435*** (0.304)	2.548*** (0.381)	1.328*** (0.305)
ROA	0.0207 (0.294)	0.275 (0.190)	0.286 (0.196)	0.227 (0.281)	0.530 (0.397)	0.207 (0.282)
Firm Age	0.349*** (0.0295)	0.376*** (0.0261)	0.424*** (0.0256)	0.294*** (0.0278)	0.569*** (0.0457)	0.316*** (0.0274)
Industry GM	0.717*** (0.195)	0.216 (0.165)	0.227 (0.164)	0.664*** (0.192)	0.936*** (0.282)	0.605*** (0.192)
BC	-0.481*** (0.102)	-0.467*** (0.107)	-0.428*** (0.106)	-0.475*** (0.103)	-0.393** (0.174)	-0.496*** (0.104)
Log Medowner	-0.0813*** (0.0170)					
G-Index		0.0735*** (0.00727)				
E-Index			0.143*** (0.0149)			
% Indep Directors				1.076*** (0.117)		
Outside Blocks					0.000489 (0.00216)	
CEO-Chair Duality						0.152*** (0.0436)
Constant	-3.944*** (0.454)	-5.072*** (0.354)	-4.835*** (0.351)	-5.063*** (0.404)	-6.560*** (0.645)	-4.792*** (0.400)
Observations	6,579	7,511	7,511	6,739	2,692	6,739

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7 - Heckman 2nd Stage: Governance and DB plan Funded Status

VARIABLES	(1) Funded Status	(2) Funded Status	(3) Funded Status	(4) Funded Status	(5) Funded Status	(6) Funded Status
Log Sales	0.0338*** (0.00472)	0.0294*** (0.00514)	0.0266*** (0.00533)	0.0313*** (0.00450)	0.0122* (0.00701)	0.0318*** (0.00463)
Sales Growth	-0.00822 (0.0212)	-0.0125 (0.0199)	-0.0132 (0.0199)	-0.0272 (0.0211)	0.0826*** (0.0311)	-0.0287 (0.0212)
Market Return	0.322*** (0.0219)	0.300*** (0.0208)	0.300*** (0.0208)	0.322*** (0.0218)	0.694*** (0.0419)	0.321*** (0.0219)
Leverage	-0.0580** (0.0294)	-0.0500** (0.0248)	-0.0534** (0.0248)	-0.0297 (0.0297)	-0.0336 (0.0459)	-0.0184 (0.0293)
Tobin's Q	-0.0116* (0.00617)	-0.0176*** (0.00572)	-0.0159*** (0.00570)	-0.0165*** (0.00619)	-0.0330*** (0.0103)	-0.0180*** (0.00621)
Unionization	0.471*** (0.0497)	0.492*** (0.0470)	0.478*** (0.0469)	0.532*** (0.0497)	0.334*** (0.0873)	0.539*** (0.0500)
ROA	0.0843 (0.0688)	0.155** (0.0627)	0.154** (0.0628)	0.0729 (0.0685)	0.260** (0.110)	0.0783 (0.0686)
Firm Age	0.0387*** (0.00921)	0.0454*** (0.00869)	0.0424*** (0.00925)	0.0444*** (0.00810)	0.0441** (0.0186)	0.0460*** (0.00861)
BC	-0.0194 (0.0238)	-0.0225 (0.0232)	-0.0178 (0.0231)	-0.0238 (0.0239)	0.0280 (0.0460)	-0.0260 (0.0241)
Industry GM	0.328*** (0.0349)	0.297*** (0.0316)	0.295*** (0.0316)	0.308*** (0.0346)	0.238*** (0.0674)	0.311*** (0.0345)
Log Medowner	-0.0245*** (0.00330)					
G-Index		0.00301 (0.00186)				
E-Index			0.00353 (0.00373)			
% Indep Directors				-0.0594** (0.0302)		
Outside Blocks					-0.00184*** (0.000451)	
CEO-Chair Duality						0.0175** (0.00875)
Constant	0.619*** (0.0721)	0.274*** (0.0863)	0.336*** (0.0850)	0.332*** (0.0817)	0.629*** (0.131)	0.259*** (0.0726)
Observations	6,544	7,471	7,471	6,702	2,685	6,702

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 - Heckman 2nd Stage: Governance and Pension Plan Assets

VARIABLES	(1) Pension Assets	(2) Pension Assets	(3) Pension Assets	(4) Pension Assets	(5) Pension Assets	(6) Pension Assets
Log Sales	1.065*** (0.0191)	1.055*** (0.0214)	1.060*** (0.0221)	1.034*** (0.0185)	1.039*** (0.0255)	1.027*** (0.0189)
Sales Growth	0.138 (0.0863)	0.152* (0.0843)	0.150* (0.0841)	0.00777 (0.0875)	0.0232 (0.114)	-0.00766 (0.0871)
Market Return	0.274*** (0.0886)	0.263*** (0.0883)	0.263*** (0.0881)	0.252*** (0.0903)	0.645*** (0.152)	0.253*** (0.0898)
Leverage	-0.140 (0.120)	-0.0662 (0.105)	-0.0608 (0.104)	0.115 (0.123)	-0.410** (0.168)	0.0206 (0.121)
Tobin's Q	0.104*** (0.0244)	0.0515** (0.0237)	0.0559** (0.0236)	0.0548** (0.0247)	0.0129 (0.0376)	0.0619** (0.0248)
Unionization	4.146*** (0.201)	4.414*** (0.199)	4.399*** (0.198)	4.537*** (0.205)	4.497*** (0.315)	4.450*** (0.205)
ROA	-1.963*** (0.276)	-1.750*** (0.263)	-1.726*** (0.263)	-1.846*** (0.277)	-1.230*** (0.403)	-1.923*** (0.278)
Firm Age	0.466*** (0.0363)	0.503*** (0.0355)	0.524*** (0.0376)	0.448*** (0.0324)	0.374*** (0.0673)	0.474*** (0.0343)
BC	-0.285*** (0.0953)	-0.294*** (0.0975)	-0.278*** (0.0969)	-0.282*** (0.0969)	-0.239 (0.167)	-0.307*** (0.0974)
Industry GM	1.920*** (0.141)	1.689*** (0.134)	1.688*** (0.134)	1.835*** (0.143)	2.118*** (0.244)	1.713*** (0.142)
Log Medowner	-0.171*** (0.0133)					
G-Index		0.0365*** (0.00772)				
E-Index			0.0838*** (0.0155)			
% Indep Directors				1.209*** (0.123)		
Outside Blocks					0.00411** (0.00165)	
CEO-Chair Duality						0.210*** (0.0359)
Constant	-3.351*** (0.289)	-5.991*** (0.354)	-5.944*** (0.348)	-6.236*** (0.327)	-5.018*** (0.473)	-5.458*** (0.292)
Observations	6,392	7,326	7,326	6,545	2,664	6,545

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 - Heckman 2nd Stage: Governance and Pension Plan Assets Per Employee

VARIABLES	(1) Pension Assets Per Employee	(2) Pension Assets Per Employee	(3) Pension Assets Per Employee	(4) Pension Assets Per Employee	(5) Pension Assets Per Employee	(6) Pension Assets Per Employee
Log Sales	0.0358 (0.0252)	0.0572** (0.0236)	0.0785*** (0.0242)	0.0565*** (0.0201)	0.00370 (0.0400)	0.0102 (0.0231)
Sales Growth	-0.387*** (0.115)	-0.408*** (0.0923)	-0.405*** (0.0911)	-0.500*** (0.0947)	-0.848*** (0.181)	-0.496*** (0.108)
Market Return	0.391*** (0.118)	0.387*** (0.0965)	0.386*** (0.0951)	0.366*** (0.0974)	1.172*** (0.242)	0.369*** (0.111)
Leverage	-0.483*** (0.159)	-0.224* (0.115)	-0.176 (0.114)	-0.178 (0.134)	-0.526** (0.257)	-0.414*** (0.148)
Tobin's Q	0.195*** (0.0314)	0.114*** (0.0259)	0.108*** (0.0257)	0.134*** (0.0268)	0.177*** (0.0554)	0.172*** (0.0296)
Unionization	4.064*** (0.268)	4.461*** (0.219)	4.549*** (0.216)	4.558*** (0.223)	3.190*** (0.495)	4.233*** (0.253)
ROA	-3.633*** (0.354)	-3.515*** (0.290)	-3.511*** (0.289)	-3.641*** (0.302)	-3.590*** (0.598)	-3.727*** (0.331)
Firm Age	0.115** (0.0472)	0.236*** (0.0390)	0.254*** (0.0410)	0.209*** (0.0350)	-0.149 (0.103)	0.151*** (0.0413)
BC	0.271** (0.125)	0.125 (0.106)	0.0997 (0.105)	0.206** (0.105)	0.305 (0.254)	0.271** (0.118)
Industry GM	0.822*** (0.189)	0.947*** (0.148)	0.963*** (0.146)	0.897*** (0.156)	0.642* (0.387)	0.705*** (0.176)
Log Medowner	-0.112*** (0.0177)					
G-Index		-0.0162* (0.00855)				
E-Index			0.0170 (0.0170)			
% Indep Directors				0.999*** (0.134)		
Outside Blocks					0.000349 (0.00258)	
CEO-Chair Duality						0.0277 (0.0438)
Constant	3.898*** (0.378)	1.803*** (0.392)	1.309*** (0.384)	0.984*** (0.359)	3.876*** (0.728)	2.507*** (0.351)
Observations	6,335	7,261	7,261	6,487	2,630	6,487

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 - Heckman 2nd Stage: Governance and Growth in Pension Plan Assets

VARIABLES	(1) Pension Assets Growth	(2) Pension Assets Growth	(3) Pension Assets Growth	(4) Pension Assets Growth	(5) Pension Assets Growth	(6) Pension Assets Growth
Log Sales	-0.00374 (0.00295)	-0.00250 (0.00321)	-0.00323 (0.00333)	-0.00247 (0.00280)	0.00589 (0.00490)	-0.00331 (0.00289)
Sales Growth	0.214*** (0.0133)	0.221*** (0.0126)	0.221*** (0.0126)	0.220*** (0.0132)	0.160*** (0.0222)	0.220*** (0.0133)
Market Return	0.0919*** (0.0136)	0.0693*** (0.0132)	0.0694*** (0.0132)	0.0965*** (0.0136)	0.459*** (0.0297)	0.0962*** (0.0137)
Leverage	-0.0546*** (0.0186)	-0.0305* (0.0157)	-0.0309** (0.0157)	-0.0612*** (0.0187)	-0.0855*** (0.0325)	-0.0611*** (0.0184)
Tobin's Q	0.000884 (0.00382)	0.00112 (0.00367)	0.00105 (0.00366)	0.00366 (0.00383)	0.00155 (0.00725)	0.00407 (0.00384)
Unionization	-0.109*** (0.0310)	-0.0682** (0.0296)	-0.0686** (0.0296)	-0.114*** (0.0310)	-0.0198 (0.0601)	-0.118*** (0.0312)
ROA	0.0266 (0.0431)	0.0215 (0.0406)	0.0184 (0.0406)	0.0229 (0.0429)	0.101 (0.0776)	0.0242 (0.0430)
Firm Age	-0.0267*** (0.00560)	-0.0330*** (0.00539)	-0.0356*** (0.00571)	-0.0273*** (0.00492)	-0.0351*** (0.0132)	-0.0288*** (0.00525)
BC	0.0606*** (0.0146)	0.0534*** (0.0145)	0.0526*** (0.0145)	0.0601*** (0.0146)	-0.0192 (0.0326)	0.0613*** (0.0148)
Industry GM	0.00721 (0.0217)	0.0526*** (0.0200)	0.0527*** (0.0200)	0.0127 (0.0216)	0.0156 (0.0470)	0.0110 (0.0216)
Log Medowner	0.00756*** (0.00205)					
G-Index		-0.00325*** (0.00116)				
E-Index			-0.00671*** (0.00233)			
% Indep Directors				-0.0128 (0.0189)		
Outside Blocks					0.000217 (0.000321)	
CEO-Chair Duality						0.00209 (0.00548)
Constant	0.0937** (0.0446)	0.214*** (0.0534)	0.214*** (0.0526)	0.191*** (0.0501)	0.0589 (0.0908)	0.194*** (0.0446)
Observations	6,336	7,258	7,258	6,484	2,619	6,484

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11 - Heckman 2nd Stage: Governance and Pension Liabilities

VARIABLES	(1) Pension Liabilities	(2) Pension Liabilities	(3) Pension Liabilities	(4) Pension Liabilities	(5) Pension Liabilities	(6) Pension Liabilities
Log Sales	1.037*** (0.0176)	1.032*** (0.0199)	1.039*** (0.0207)	1.009*** (0.0168)	1.028*** (0.0244)	1.000*** (0.0173)
Sales Growth	0.160** (0.0790)	0.170** (0.0777)	0.169** (0.0776)	0.0467 (0.0787)	0.0189 (0.108)	0.0345 (0.0788)
Market Return	-0.0763 (0.0811)	-0.0623 (0.0810)	-0.0633 (0.0810)	-0.0996 (0.0811)	-0.0362 (0.146)	-0.0961 (0.0812)
Leverage	0.0864 (0.109)	0.172* (0.0955)	0.183* (0.0955)	0.276** (0.110)	-0.326** (0.159)	0.178 (0.108)
Tobin's Q	0.137*** (0.0229)	0.0708*** (0.0221)	0.0740*** (0.0220)	0.0918*** (0.0230)	0.0616* (0.0358)	0.102*** (0.0231)
Unionization	3.630*** (0.185)	3.876*** (0.183)	3.871*** (0.183)	3.996*** (0.186)	4.074*** (0.304)	3.874*** (0.186)
ROA	-2.097*** (0.254)	-1.746*** (0.241)	-1.720*** (0.241)	-1.993*** (0.252)	-1.461*** (0.380)	-2.053*** (0.254)
Firm Age	0.390*** (0.0341)	0.424*** (0.0334)	0.447*** (0.0356)	0.369*** (0.0300)	0.288*** (0.0654)	0.390*** (0.0319)
BC	-0.233*** (0.0882)	-0.252*** (0.0897)	-0.237*** (0.0893)	-0.218** (0.0883)	-0.198 (0.160)	-0.235*** (0.0892)
Industry GM	1.484*** (0.130)	1.323*** (0.123)	1.323*** (0.123)	1.436*** (0.129)	1.710*** (0.234)	1.291*** (0.129)
Log Medowner	-0.141*** (0.0122)					
G-Index		0.0338*** (0.00720)				
E-Index			0.0821*** (0.0144)			
% Indep Directors				1.248*** (0.112)		
Outside Blocks					0.00415*** (0.00156)	
CEO-Chair Duality						0.203*** (0.0324)
Constant	-2.928*** (0.268)	-5.191*** (0.333)	-5.199*** (0.328)	-5.449*** (0.304)	-4.399*** (0.459)	-4.594*** (0.272)
Observations	6,579	7,511	7,511	6,739	2,692	6,739

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12 - Heckman 2nd Stage: Governance and Pension Liabilities Per Employee

VARIABLES	(1) Pension Liabilities Per Employee	(2) Pension Liabilities Per Employee	(3) Pension Liabilities Per Employee	(4) Pension Liabilities Per Employee	(5) Pension Liabilities Per Employee	(6) Pension Liabilities Per Employee
Log Sales	0.00169 (0.0340)	0.0410* (0.0230)	0.0643*** (0.0235)	0.0255 (0.0199)	-0.00865 (0.0452)	-0.0227 (0.0324)
Sales Growth	-0.382** (0.157)	-0.396*** (0.0908)	-0.393*** (0.0889)	-0.478*** (0.0960)	-0.847*** (0.203)	-0.472*** (0.152)
Market Return	0.0343 (0.160)	0.0543 (0.0948)	0.0541 (0.0926)	0.0102 (0.0986)	0.499* (0.274)	0.0133 (0.156)
Leverage	-0.271 (0.212)	0.0309 (0.111)	0.0794 (0.109)	-0.0373 (0.132)	-0.451 (0.289)	-0.267 (0.205)
Tobin's Q	0.243*** (0.0431)	0.134*** (0.0253)	0.127*** (0.0249)	0.184*** (0.0267)	0.229*** (0.0626)	0.227*** (0.0422)
Unionization	3.564*** (0.365)	4.001*** (0.215)	4.101*** (0.211)	4.041*** (0.225)	2.745*** (0.566)	3.670*** (0.357)
ROA	-3.896*** (0.477)	-3.537*** (0.275)	-3.521*** (0.273)	-3.927*** (0.293)	-3.856*** (0.669)	-4.007*** (0.463)
Firm Age	0.0207 (0.0650)	0.161*** (0.0384)	0.183*** (0.0404)	0.118*** (0.0353)	-0.246** (0.118)	0.0529 (0.0590)
BC	0.326* (0.170)	0.140 (0.104)	0.116 (0.102)	0.268** (0.105)	0.353 (0.288)	0.344** (0.167)
Industry GM	0.379 (0.258)	0.599*** (0.145)	0.621*** (0.142)	0.501*** (0.158)	0.262 (0.438)	0.275 (0.248)
Log Medowner	-0.0798*** (0.0240)					
G-Index		-0.0149* (0.00843)				
E-Index			0.0261 (0.0165)			
% Indep Directors				1.052*** (0.133)		
Outside Blocks					0.000258 (0.00290)	
CEO-Chair Duality						0.0298 (0.0613)
Constant	4.421*** (0.515)	2.451*** (0.383)	1.910*** (0.375)	1.858*** (0.354)	4.558*** (0.834)	3.478*** (0.498)
Observations	6,520	7,444	7,444	6,679	2,656	6,679

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13 - Heckman 2nd Stage: Governance and Growth in Pension Liabilities

VARIABLES	(1) Pension Liabilities Growth	(2) Pension Liabilities Growth	(3) Pension Liabilities Growth	(4) Pension Liabilities Growth	(5) Pension Liabilities Growth	(6) Pension Liabilities Growth
Log Sales	-0.00121 (0.00252)	-0.000957 (0.00282)	-0.00152 (0.00293)	-0.000842 (0.00242)	0.0102** (0.00516)	-0.000856 (0.00248)
Sales Growth	0.180*** (0.0114)	0.193*** (0.0110)	0.193*** (0.0110)	0.187*** (0.0114)	0.179*** (0.0233)	0.187*** (0.0113)
Market Return	-0.198*** (0.0116)	-0.194*** (0.0115)	-0.194*** (0.0115)	-0.198*** (0.0117)	-0.0339 (0.0315)	-0.198*** (0.0116)
Leverage	0.0100 (0.0156)	0.00505 (0.0136)	0.00424 (0.0136)	0.00122 (0.0159)	-0.0294 (0.0341)	0.00477 (0.0156)
Tobin's Q	0.00163 (0.00333)	0.000882 (0.00323)	0.000790 (0.00322)	0.00336 (0.00337)	0.00240 (0.00765)	0.00291 (0.00336)
Unionization	-0.0623** (0.0265)	-0.0421 (0.0260)	-0.0426 (0.0260)	-0.0664** (0.0268)	-0.00797 (0.0640)	-0.0649** (0.0268)
ROA	0.0328 (0.0369)	0.0830** (0.0349)	0.0814** (0.0350)	0.0417 (0.0370)	0.0860 (0.0814)	0.0449 (0.0369)
Firm Age	-0.0134*** (0.00487)	-0.0199*** (0.00477)	-0.0215*** (0.00508)	-0.0182*** (0.00431)	-0.0243* (0.0141)	-0.0182*** (0.00457)
BC	0.0438*** (0.0126)	0.0402*** (0.0127)	0.0397*** (0.0126)	0.0410*** (0.0127)	-0.0496 (0.0347)	0.0410*** (0.0128)
Industry GM	0.00647 (0.0186)	0.0287* (0.0174)	0.0286 (0.0174)	0.00661 (0.0186)	0.0239 (0.0498)	0.00790 (0.0184)
Log Medowner	0.00463*** (0.00176)					
G-Index		-0.00184* (0.00102)				
E-Index			-0.00468** (0.00205)			
% Indep Directors				-0.0262 (0.0163)		
Outside Blocks					0.000111 (0.000337)	
CEO-Chair Duality						0.00411 (0.00465)
Constant	0.0650* (0.0384)	0.151*** (0.0474)	0.155*** (0.0467)	0.160*** (0.0440)	0.0892 (0.0969)	0.136*** (0.0389)
Observations	6,512	7,430	7,430	6,668	2,638	6,668

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14 – Governance and Funded Status Volatility

VARIABLES	(1) Funded Status Volatility	(2) Funded Status Volatility	(3) Funded Status Volatility	(4) Funded Status Volatility	(5) Funded Status Volatility	(6) Funded Status Volatility
Log Sales	-0.00106 (0.00147)	-0.00520*** (0.00162)	-0.00589*** (0.00169)	-0.00156 (0.00139)	0.00159 (0.00230)	-0.00167 (0.00143)
Sales Growth	0.00901 (0.00663)	0.00457 (0.00632)	0.00481 (0.00638)	0.00705 (0.00651)	0.0413*** (0.0102)	0.00682 (0.00651)
Market Return	-0.00608 (0.00681)	-0.00478 (0.00660)	-0.00493 (0.00667)	-0.00759 (0.00671)	-0.0467*** (0.0138)	-0.00769 (0.00671)
Leverage	0.0213** (0.00915)	0.0170** (0.00779)	0.0150* (0.00785)	0.0248*** (0.00913)	0.0360** (0.0150)	0.0254*** (0.00896)
Tobin's Q	-0.00581*** (0.00193)	-0.00461** (0.00180)	-0.00441** (0.00181)	-0.00615*** (0.00191)	-0.00889*** (0.00334)	-0.00623*** (0.00191)
Unionization	0.0282* (0.0155)	0.0142 (0.0149)	0.0105 (0.0150)	0.0358** (0.0153)	-0.0293 (0.0287)	0.0351** (0.0153)
ROA	0.0379* (0.0214)	0.0290 (0.0197)	0.0318 (0.0198)	0.0377* (0.0211)	0.114*** (0.0356)	0.0383* (0.0211)
Firm Age	0.0169*** (0.00288)	0.0113*** (0.00274)	0.0121*** (0.00293)	0.0184*** (0.00250)	0.0185*** (0.00611)	0.0185*** (0.00265)
BC	-0.00820 (0.00739)	-0.00367 (0.00730)	-0.00242 (0.00734)	-0.00778 (0.00732)	-0.00336 (0.0152)	-0.00799 (0.00737)
Industry GM	-0.0204* (0.0109)	-0.0382*** (0.0100)	-0.0396*** (0.0101)	-0.0216** (0.0107)	-0.0768*** (0.0221)	-0.0226** (0.0106)
Log Medowner	-0.00277*** (0.00103)					
G-Index		0.00228*** (0.000587)				
E-Index			0.000946 (0.00119)			
% Indep Directors				0.00116 (0.00931)		
Outside Blocks					-0.000631*** (0.000148)	
CEO-Chair Duality						0.00397 (0.00268)
Constant	0.172*** (0.0225)	0.180*** (0.0271)	0.205*** (0.0269)	0.132*** (0.0253)	0.130*** (0.0430)	0.130*** (0.0224)
Observations	6,566	7,493	7,493	6,724	2,682	6,724

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15 – Heckman 2nd Stage: Governance and lower discount rates (below median) used to discount pension liabilities

VARIABLES	(1) Low Disc	(2) Low Disc	(3) Low Disc	(4) Low Disc	(5) Low Disc	(6) Low Disc
Log Sales	-0.00980 (0.00811)	-0.00762 (0.00896)	-0.00406 (0.00928)	-0.00617 (0.00763)	-0.00489 (0.00327)	-0.00482 (0.00795)
Sales Growth	0.251*** (0.0373)	0.234*** (0.0355)	0.234*** (0.0354)	0.276*** (0.0368)	-0.00316 (0.0145)	0.277*** (0.0372)
Market Return	0.647*** (0.0380)	0.661*** (0.0369)	0.661*** (0.0367)	0.638*** (0.0377)	-0.0379* (0.0206)	0.641*** (0.0381)
Leverage	-0.0937* (0.0512)	-0.0364 (0.0436)	-0.0275 (0.0435)	-0.124** (0.0514)	0.00342 (0.0217)	-0.140*** (0.0510)
Tobin's Q	0.0158 (0.0111)	0.0289*** (0.0105)	0.0278*** (0.0104)	0.0257** (0.0111)	0.0152*** (0.00534)	0.0280** (0.0112)
Unionization	-0.408*** (0.0855)	-0.483*** (0.0824)	-0.470*** (0.0820)	-0.531*** (0.0851)	-0.0900** (0.0413)	-0.545*** (0.0861)
ROA	-0.434*** (0.120)	-0.671*** (0.111)	-0.670*** (0.111)	-0.412*** (0.118)	-0.0479 (0.0515)	-0.432*** (0.119)
Firm Age	0.00507 (0.0162)	-0.0138 (0.0155)	-0.0111 (0.0165)	-0.00515 (0.0140)	-0.00420 (0.00911)	0.00213 (0.0151)
BC	0.0117 (0.0415)	-0.00161 (0.0411)	-0.00510 (0.0407)	0.0338 (0.0412)	0.0120 (0.0229)	0.0253 (0.0419)
Industry GM	-0.0330 (0.0599)	0.0468 (0.0552)	0.0495 (0.0550)	0.0301 (0.0591)	-0.0148 (0.0311)	0.00696 (0.0593)
Log Medowner	0.0483*** (0.00574)					
G-Index		-0.00300 (0.00332)				
E-Index			0.00490 (0.00661)			
% Indep Directors				0.272*** (0.0539)		
Outside Blocks					0.000377* (0.000212)	
CEO-Chair Duality						0.0102 (0.0152)
Constant	-0.0431 (0.125)	0.673*** (0.151)	0.584*** (0.149)	0.400*** (0.140)	0.0773 (0.0622)	0.567*** (0.124)
Observations	6,223	7,152	7,152	6,372	2,428	6,372

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 16 – Heckman 2nd Stage: Governance and higher rates of return (above median) used to smooth pension returns

VARIABLES	(1) Excess ROR	(2) Excess ROR	(3) Excess ROR	(4) Excess ROR	(5) Excess ROR	(6) Excess ROR
Log Sales	0.0630*** (0.00889)	0.0567*** (0.00946)	0.0540*** (0.00972)	0.0495*** (0.00828)	0.0480*** (0.0114)	0.0488*** (0.00865)
Sales Growth	-0.0876** (0.0414)	-0.0932** (0.0381)	-0.0946** (0.0377)	-0.127*** (0.0403)	0.128** (0.0516)	-0.131*** (0.0408)
Market Return	-0.203*** (0.0422)	-0.187*** (0.0397)	-0.187*** (0.0393)	-0.201*** (0.0413)	0.0907 (0.0736)	-0.203*** (0.0418)
Leverage	0.274*** (0.0569)	0.212*** (0.0466)	0.203*** (0.0463)	0.295*** (0.0566)	0.144* (0.0766)	0.304*** (0.0562)
Tobin's Q	-0.0187 (0.0118)	-0.0298*** (0.0108)	-0.0272** (0.0107)	-0.0283** (0.0117)	-0.0339* (0.0189)	-0.0303*** (0.0118)
Unionization	0.726*** (0.0946)	0.849*** (0.0885)	0.828*** (0.0876)	0.861*** (0.0929)	0.475*** (0.144)	0.863*** (0.0943)
ROA	0.279** (0.129)	0.477*** (0.115)	0.485*** (0.115)	0.312** (0.127)	0.492*** (0.186)	0.314** (0.128)
Firm Age	0.0721*** (0.0174)	0.0904*** (0.0161)	0.0935*** (0.0170)	0.0538*** (0.0149)	0.0575* (0.0320)	0.0579*** (0.0161)
BC	-0.0122 (0.0458)	-0.000708 (0.0445)	0.00897 (0.0439)	-0.0292 (0.0451)	0.00750 (0.0833)	-0.0352 (0.0459)
Industry GM	0.332*** (0.0663)	0.195*** (0.0596)	0.190*** (0.0590)	0.277*** (0.0647)	0.466*** (0.111)	0.269*** (0.0651)
Log Medowner	-0.0604*** (0.00636)					
G-Index		0.0144*** (0.00348)				
E-Index			0.0213*** (0.00691)			
% Indep Directors				0.00790 (0.0583)		
Outside Blocks					0.00143* (0.000764)	
CEO-Chair Duality						0.0634*** (0.0167)
Constant	0.149 (0.135)	-0.787*** (0.157)	-0.674*** (0.154)	-0.469*** (0.149)	-0.166 (0.216)	-0.522*** (0.133)
Observations	6,040	6,962	6,962	6,184	2,379	6,184

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 17 – Probit regression detailing likelihood of having a “Well Funded” (above median) pension plan

VARIABLES	(1) Well Funded	(2) Well Funded	(3) Well Funded	(4) Well Funded	(5) Well Funded	(6) Well Funded
Log Sales	0.183*** (0.0128)	0.191*** (0.0114)	0.197*** (0.0114)	0.168*** (0.0124)	0.214*** (0.0221)	0.166*** (0.0125)
Sales Growth	-0.112 (0.0923)	-0.0510 (0.0827)	-0.0514 (0.0829)	-0.167* (0.0903)	0.262* (0.137)	-0.173* (0.0903)
Market Return	1.046*** (0.0945)	0.952*** (0.0891)	0.953*** (0.0891)	1.038*** (0.0929)	1.548*** (0.169)	1.038*** (0.0929)
Leverage	-0.0915 (0.115)	-0.106 (0.0966)	-0.104 (0.0966)	-0.0237 (0.112)	-0.0266 (0.177)	-0.0395 (0.112)
Tobin's Q	-0.0563*** (0.0213)	-0.0759*** (0.0183)	-0.0737*** (0.0183)	-0.0734*** (0.0204)	-0.227*** (0.0323)	-0.0726*** (0.0206)
Employee Productivity	0.0386* (0.0220)	0.0320 (0.0205)	0.0273 (0.0205)	0.0316 (0.0220)	0.0923** (0.0419)	0.0391* (0.0218)
Unionization	1.593*** (0.209)	1.547*** (0.190)	1.547*** (0.190)	1.815*** (0.203)	2.549*** (0.321)	1.774*** (0.204)
ROA	0.138 (0.250)	0.610*** (0.206)	0.634*** (0.207)	0.204 (0.241)	0.576 (0.393)	0.199 (0.242)
Firm Age	0.267*** (0.0266)	0.292*** (0.0246)	0.320*** (0.0240)	0.240*** (0.0253)	0.508*** (0.0449)	0.247*** (0.0251)
Industry GM	1.187*** (0.146)	0.939*** (0.134)	0.934*** (0.134)	1.124*** (0.143)	1.651*** (0.268)	1.090*** (0.144)
BC	-0.256*** (0.0921)	-0.292*** (0.0928)	-0.276*** (0.0925)	-0.278*** (0.0916)	-0.250 (0.170)	-0.287*** (0.0918)
Log Medowner	-0.0855*** (0.0133)					
G-Index		0.0383*** (0.00594)				
E-Index			0.0795*** (0.0119)			
% Indep Directors				0.266*** (0.0966)		
Outside Blocks					-0.00136 (0.00194)	
CEO-Chair Duality						0.0837** (0.0343)
Constant	-2.143*** (0.324)	-3.706*** (0.267)	-3.608*** (0.266)	-3.172*** (0.279)	-4.864*** (0.558)	-3.127*** (0.278)
Observations	6,579	7,511	7,511	6,739	2,692	6,739

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 18 – Heckman 2nd Stage: Governance and Well Funded (above median) status

VARIABLES	(1) Well Funded	(2) Well Funded	(3) Well Funded	(4) Well Funded	(5) Well Funded	(6) Well Funded
Log Sales	0.0520*** (0.00780)	0.0626*** (0.00879)	0.0636*** (0.00910)	0.0530*** (0.00744)	0.0178* (0.00919)	0.0496*** (0.00762)
Sales Growth	-0.0449 (0.0350)	-0.0284 (0.0343)	-0.0290 (0.0343)	-0.0675* (0.0348)	0.0492 (0.0407)	-0.0688** (0.0347)
Market Return	0.443*** (0.0359)	0.428*** (0.0358)	0.428*** (0.0358)	0.446*** (0.0359)	0.848*** (0.0549)	0.446*** (0.0357)
Leverage	-0.108** (0.0483)	-0.0720* (0.0421)	-0.0713* (0.0421)	-0.0638 (0.0488)	-0.112* (0.0597)	-0.0734 (0.0477)
Tobins Q	-0.00976 (0.0101)	-0.0242** (0.00974)	-0.0229** (0.00971)	-0.0183* (0.0102)	-0.0399*** (0.0135)	-0.0163 (0.0102)
Unionization	0.574*** (0.0818)	0.627*** (0.0810)	0.621*** (0.0809)	0.684*** (0.0823)	0.309*** (0.115)	0.664*** (0.0821)
ROA	0.0648 (0.113)	0.232** (0.106)	0.240** (0.106)	0.0570 (0.112)	0.199 (0.143)	0.0540 (0.112)
Firm Age	0.0767*** (0.0151)	0.107*** (0.0147)	0.114*** (0.0157)	0.0822*** (0.0133)	0.0405* (0.0246)	0.0787*** (0.0141)
BC	-0.0628 (0.0390)	-0.0972** (0.0396)	-0.0915** (0.0394)	-0.0828** (0.0391)	-0.0240 (0.0601)	-0.0786** (0.0393)
Industry GM	0.421*** (0.0575)	0.396*** (0.0544)	0.396*** (0.0543)	0.413*** (0.0573)	0.378*** (0.0880)	0.401*** (0.0567)
Log Medowner	-0.0295*** (0.00542)					
G-Index		0.0117*** (0.00318)				
E-Index			0.0246*** (0.00634)			
% Indep Directors				0.0264 (0.0495)		
Outside Blocks					-0.000951 (0.000589)	
CEO-Chair Duality						0.0197 (0.0143)
Constant	0.101 (0.119)	-0.649*** (0.147)	-0.624*** (0.145)	-0.361*** (0.135)	0.349** (0.172)	-0.304** (0.120)
Observations	6,579	7,511	7,511	6,739	2,692	6,739

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 19 – Heckman 1st Stage: Probit regression detailing likelihood of sponsoring DB plan with MTR variable

VARIABLES	(1) Pen	(2) Pen	(3) Pen	(4) Pen	(5) Pen	(6) Pen
Log Sales	0.285*** (0.0246)	0.314*** (0.0208)	0.326*** (0.0211)	0.262*** (0.0236)	0.257*** (0.0295)	0.266*** (0.0235)
Sales Growth	-0.0814 (0.152)	-0.0980 (0.133)	-0.120 (0.133)	-0.153 (0.150)	0.0773 (0.180)	-0.158 (0.149)
Market Return	-0.162 (0.153)	-0.154 (0.139)	-0.154 (0.138)	-0.176 (0.149)	-0.888*** (0.216)	-0.190 (0.148)
Leverage	0.747*** (0.192)	0.437*** (0.150)	0.409*** (0.150)	0.872*** (0.183)	0.549** (0.214)	0.811*** (0.189)
Tobin's Q	-0.0948*** (0.0276)	-0.103*** (0.0227)	-0.103*** (0.0229)	-0.120*** (0.0258)	-0.191*** (0.0344)	-0.119*** (0.0263)
Employee Productivity	0.271*** (0.0393)	0.179*** (0.0350)	0.171*** (0.0350)	0.224*** (0.0395)	0.227*** (0.0543)	0.255*** (0.0388)
Unionization	1.647*** (0.387)	2.377*** (0.351)	2.281*** (0.357)	1.968*** (0.373)	2.466*** (0.431)	1.833*** (0.373)
ROA	-0.0685 (0.342)	0.0360 (0.247)	0.0132 (0.252)	0.0646 (0.336)	0.833* (0.450)	0.0672 (0.341)
Firm Age	0.356*** (0.0378)	0.351*** (0.0346)	0.421*** (0.0338)	0.304*** (0.0352)	0.705*** (0.0539)	0.328*** (0.0345)
Industry GM	0.925*** (0.287)	0.530** (0.257)	0.568** (0.257)	0.967*** (0.283)	0.0668 (0.374)	0.870*** (0.284)
BC	-0.671*** (0.128)	-0.670*** (0.135)	-0.605*** (0.130)	-0.701*** (0.125)	-0.414** (0.198)	-0.679*** (0.128)
MTR	0.858*** (0.179)	0.898*** (0.161)	0.912*** (0.160)	0.880*** (0.177)	0.191 (0.241)	0.844*** (0.175)
Log Medowner	-0.111*** (0.0219)					
G-Index		0.0919*** (0.00936)				
E-Index			0.158*** (0.0194)			
% Indep Directors				1.065*** (0.143)		
Outside Blocks					0.00477* (0.00253)	
CEO-Chair Duality						0.0413 (0.0537)
Constant	-4.601*** (0.577)	-6.020*** (0.445)	-5.733*** (0.445)	-5.940*** (0.497)	-6.321*** (0.722)	-5.682*** (0.494)
Observations	4,425	4,935	4,935	4,537	2,186	4,537

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 20 – Heckman 2nd Stage: Governance and DB Plan management including MTR variable

VARIABLES	(1) Funded Status	(2) Pension Assets Growth	(3) Pension Liabs Growth	(4) Pension Assets	(5) Pension Liabilities	(6) Pension Assets Per Employee	(7) Pension Liabs Per Employee
Log Sales	0.0311*** (0.00523)	-1.58e-05 (0.00313)	0.000481 (0.00275)	1.071*** (0.0220)	1.030*** (0.0197)	0.0734*** (0.0251)	0.0544* (0.0287)
Sales Growth	-0.0114 (0.0257)	0.189*** (0.0154)	0.162*** (0.0135)	0.205* (0.108)	0.238** (0.0972)	-0.341*** (0.124)	-0.327** (0.143)
Market Return	0.375*** (0.0266)	0.130*** (0.0158)	-0.204*** (0.0139)	0.339*** (0.111)	-0.0480 (0.100)	0.508*** (0.128)	0.119 (0.147)
Leverage	0.0393 (0.0376)	-0.0717*** (0.0228)	0.0174 (0.0196)	-0.280* (0.160)	-0.0274 (0.141)	-0.417** (0.180)	-0.146 (0.202)
Tobin's Q	-0.0117* (0.00678)	-0.00348 (0.00404)	-0.00118 (0.00359)	0.100*** (0.0281)	0.129*** (0.0256)	0.169*** (0.0311)	0.204*** (0.0359)
Unionization	0.424*** (0.0586)	-0.102*** (0.0349)	-0.0729** (0.0309)	4.161*** (0.245)	3.492*** (0.222)	4.176*** (0.281)	3.584*** (0.325)
ROA	0.392*** (0.0857)	0.0469 (0.0519)	0.112** (0.0453)	-1.502*** (0.360)	-1.749*** (0.322)	-3.109*** (0.393)	-3.479*** (0.444)
Firm Age	0.0317*** (0.0106)	-0.0163*** (0.00615)	-0.00951* (0.00546)	0.424*** (0.0435)	0.350*** (0.0397)	0.166*** (0.0487)	0.0983* (0.0564)
BC	-0.00493 (0.0308)	0.0600*** (0.0180)	0.0428*** (0.0162)	-0.280** (0.127)	-0.152 (0.117)	0.311** (0.141)	0.463*** (0.165)
Industry GM	0.121** (0.0517)	-0.0158 (0.0307)	-0.0295 (0.0271)	1.805*** (0.216)	1.329*** (0.195)	0.633** (0.248)	0.223 (0.286)
Log Medowner	-0.0303*** (0.00406)	0.00612** (0.00241)	0.00395* (0.00213)	-0.186*** (0.0169)	-0.151*** (0.0153)	-0.130*** (0.0194)	-0.0998*** (0.0223)
MTR	0.174*** (0.0348)	0.0242 (0.0207)	0.0305* (0.0183)	0.263* (0.146)	-0.00963 (0.131)	0.411** (0.166)	0.168 (0.191)
Constant	0.709*** (0.0809)	0.0373 (0.0481)	0.0410 (0.0425)	-3.062*** (0.339)	-2.508*** (0.307)	3.504*** (0.383)	3.877*** (0.441)
Observations	4,400	4,271	4,380	4,306	4,425	4,271	4,389

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 21 – 1st Stage Heckman: Result of pension choice with CEO Characteristics

VARIABLES	(1) Pen	(2) Pen	(3) Pen	(5) Pen	(6) Pen	(7) Pen	(8) Pen
Log Sales	0.188*** (0.0229)	0.354*** (0.0502)	0.203*** (0.0247)	0.249*** (0.0219)	0.255*** (0.0350)	0.275*** (0.0208)	0.234*** (0.0365)
Sales Growth	-0.177 (0.136)	-0.273 (0.307)	-0.189 (0.137)	-0.169 (0.136)	-0.255 (0.223)	-0.161 (0.135)	-0.368 (0.227)
Market Return	0.0441 (0.128)	0.253 (0.230)	0.0502 (0.127)	0.0169 (0.127)	0.00846 (0.179)	0.0109 (0.127)	0.00746 (0.180)
Leverage	0.412*** (0.160)	-0.0812 (0.262)	0.429*** (0.160)	0.464*** (0.159)	0.0350 (0.209)	0.503*** (0.159)	0.0549 (0.211)
Tobin's Q	-0.0967*** (0.0265)	-0.124** (0.0542)	-0.111*** (0.0277)	-0.0945*** (0.0270)	-0.141*** (0.0413)	-0.0751*** (0.0272)	-0.127*** (0.0423)
Employee Productivity	0.206*** (0.0333)	0.212*** (0.0636)	0.195*** (0.0330)	0.199*** (0.0329)	0.137*** (0.0493)	0.212*** (0.0329)	0.109** (0.0502)
Unionization	1.788*** (0.342)	1.528** (0.637)	1.798*** (0.345)	1.749*** (0.343)	2.246*** (0.521)	1.671*** (0.339)	2.432*** (0.525)
ROA	-0.343 (0.364)	0.869 (0.672)	-0.282 (0.372)	-0.372 (0.366)	0.587 (0.517)	-0.484 (0.370)	0.131 (0.533)
Firm Age	0.347*** (0.0307)	0.382*** (0.0622)	0.366*** (0.0307)	0.361*** (0.0307)	0.452*** (0.0486)	0.348*** (0.0304)	0.454*** (0.0489)
BC	-0.450*** (0.102)	-0.285 (0.261)	-0.489*** (0.102)	-0.516*** (0.102)	-0.605*** (0.165)	-0.531*** (0.103)	-0.609*** (0.165)
Industry GM	0.803*** (0.207)	0.894*** (0.318)	0.862*** (0.207)	0.953*** (0.207)	1.019*** (0.280)	0.984*** (0.207)	1.042*** (0.285)
Log Medowner	-0.0956*** (0.0185)	-0.0504 (0.0342)	-0.0971*** (0.0184)	-0.0933*** (0.0184)	-0.0836*** (0.0262)	-0.0936*** (0.0184)	-0.0934*** (0.0266)
Log CEO Salary	0.405*** (0.0468)						
Log Shares (Value)		-0.129*** (0.0270)					
Log Total Comp			0.155*** (0.0290)				
% Salary of Total Comp				-0.404*** (0.104)			-0.410*** (0.154)
CEO Ownership					-0.0303*** (0.00409)		-0.0268*** (0.00441)
% Bonus						0.360** (0.144)	0.680*** (0.219)
Constant	-5.535*** (0.523)	-3.962*** (0.957)	-4.196*** (0.490)	-3.324*** (0.493)	-3.125*** (0.716)	-3.847*** (0.476)	-2.493*** (0.754)
Observations	6,213	1,424	6,198	6,198	2,217	6,198	2,203

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 22 – Heckman 2nd Stage: CEO Characteristics and pension plan funded status

VARIABLES	(1) Funded Status	(2) Funded Status	(3) Funded Status	(4) Funded Status	(5) Funded Status	(6) Funded Status	(7) Funded Status
Log Sales	0.0481*** (0.00422)	0.0302* (0.0171)	0.0477*** (0.00466)	0.0386*** (0.00462)	0.0458*** (0.0117)	0.0359*** (0.00470)	0.0392*** (0.0104)
Sales Growth	0.000304 (0.0220)	-0.127** (0.0585)	0.00105 (0.0221)	-0.00248 (0.0222)	-0.0902* (0.0461)	-0.00402 (0.0221)	-0.0705 (0.0443)
Market Return	0.317*** (0.0222)	0.251*** (0.0526)	0.316*** (0.0221)	0.319*** (0.0221)	0.229*** (0.0431)	0.321*** (0.0221)	0.235*** (0.0404)
Leverage	-0.0756** (0.0298)	0.0375 (0.0641)	-0.0800*** (0.0300)	-0.0835*** (0.0302)	0.0525 (0.0542)	-0.0849*** (0.0303)	0.0412 (0.0512)
Tobin's Q	-0.00967 (0.00607)	-0.0602*** (0.0184)	-0.00858 (0.00623)	-0.0106* (0.00614)	-0.0497*** (0.0151)	-0.0136** (0.00604)	-0.0406*** (0.0144)
Unionization	0.474*** (0.0524)	0.225* (0.132)	0.481*** (0.0529)	0.479*** (0.0530)	0.596*** (0.127)	0.492*** (0.0525)	0.492*** (0.122)
ROA	0.107 (0.0710)	0.476*** (0.182)	0.0969 (0.0708)	0.114 (0.0710)	0.362** (0.143)	0.128* (0.0718)	0.381*** (0.137)
Firm Age	0.0309*** (0.00889)	0.0867*** (0.0221)	0.0315*** (0.00936)	0.0302*** (0.00942)	0.0721*** (0.0227)	0.0327*** (0.00920)	0.0500** (0.0213)
BC	-0.0199 (0.0235)	-0.0959 (0.0705)	-0.0209 (0.0236)	-0.0187 (0.0238)	-0.0565 (0.0549)	-0.0209 (0.0238)	-0.0328 (0.0519)
Industry GM	0.345*** (0.0355)	0.233*** (0.0849)	0.344*** (0.0358)	0.327*** (0.0363)	0.406*** (0.0796)	0.329*** (0.0364)	0.369*** (0.0740)
Log Medowner	-0.0237*** (0.00346)	-0.00603 (0.00777)	-0.0231*** (0.00347)	-0.0233*** (0.00346)	-0.0214*** (0.00699)	-0.0239*** (0.00344)	-0.0160** (0.00683)
Log CEO Salary	-0.0640*** (0.0119)						
Log Shares (Value)		-0.00383 (0.00798)					
Log Total Comp			-0.0236*** (0.00568)				
% Salary				0.0565*** (0.0218)			0.0543 (0.0411)
CEO Ownership					-0.00152 (0.00189)		-0.000459 (0.00171)
% Bonus						-0.0483* (0.0247)	-0.120** (0.0522)
Constant	0.938*** (0.105)	0.260 (0.183)	0.700*** (0.0812)	0.583*** (0.0723)	0.242 (0.167)	0.628*** (0.0736)	0.340** (0.148)
Observations	6,181	1,417	6,171	6,171	2,204	6,171	2,192

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1